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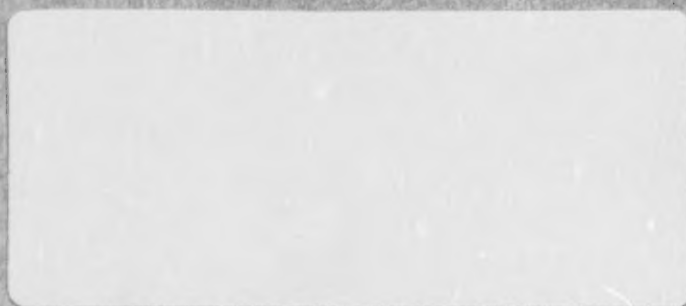
MISSISSIPPI RIVER RECONNAISSANCE, REPORT OF
SAMPLING IN THE VICINITY OF DUBUQUE, IOWA
AND THE TRIBUTARIES FROM ABOVE DUBUQUE TO
BELOW KEOKUK, IOWA, IN BOTH IOWA AND ILLINOIS

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
CHICAGO, ILLINOIS

1969

287019

PB 260 130



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MISSISSIPPI RIVER RECONNAISSANCE

Report of Sampling in the Vicinity of
Dubuque, Iowa, and the Tributaries from
Above Dubuque to Below Keokuk, Iowa, in
both Iowa and Illinois —

July 22 to August 1, 1969

U. S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
Lake Michigan Basin Office

Chicago, Illinois

BIBLIOGRAPHIC DATA SHEET	1. Report No.	2.	3. Recipient's Accession No. PB-260 130
4. Title and Subtitle Mississippi River Reconnaissance, Report of Sampling in the Vicinity of Dubuque, Iowa, and the Tributaries from Above Dubuque to Below Keokuk, Iowa, in both Iowa and Illinois.		5. Report Date 22 Jul - 1 Aug 69	
7. Author(s)		8. Performing Organization Rept. No.	
9. Performing Organization Name and Address Federal Water Pollution Control Administration, Chicago, Ill. Lake Michigan Basin Office.		10. Project/Task/Work Unit No.	
		11. Contract/Grant No.	
12. Sponsoring Organization Name and Address		13. Type of Report & Period Covered	
		14.	
15. Supplementary Notes Portions of this document are not fully legible.			
16. Abstracts The results of a reconnaissance run of the Mississippi River in the Iowa area to determine the effect that poorly treated or untreated wastes, especially sewage, has on the Mississippi is presented. Biological and chemical oxygen demand samples were collected for analysis from 55 sampling points along the Mississippi River tributaries in the vicinity of Dubuque, Iowa. Field measurements and observations along with physical observations and measurements were recorded. Potential sources of pollution were observed and recorded, and the sampling areas were photographed. The Mississippi shore line was inspected for industrial and domestic waste outfalls. Bottom samples were collected at various points.			
17. Key Words and Document Analysis. 17a. Descriptors			
17b. Identifiers/Open-Ended Terms Mississippi River Basin Dubuque (Iowa) Domestic wastes Industrial wastes Chemical oxygen demand Phytoplankton Benthos 17c. COSATI Field/Group 13B			
18. Availability Statement		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 169
		20. Security Class (This Page) UNCLASSIFIED	22. Price

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Table of Contents

- I. Introduction
- II. Conclusions and Recommendations
- III. Field Observations and Measurements
 - A. Tributary Reconnaissance
 - B. Main Stem Reconnaissance
- IV. Laboratory Findings
 - A. Tributary Samples
 - B. Main Stem Samples
 - C. Tributary and Main Stem Biological Samples
- V. Appendix
 - Tabular Data
 - Field Records
 - Laboratory Results

I. Introduction

Conference proceedings indicate that Iowa standards for the Mississippi River are not in agreement with the standards for the Mississippi established by Illinois, Minnesota, Missouri, and Wisconsin.

Information is needed on the adverse effect that poorly treated or untreated wastes, especially sewage, is having upon the waters of the Mississippi River in the Iowa area. Reference data indicates that waste discharges to the Mississippi in Iowa from the following cities are adding at least 165,000 P.E., respectively, to the river: Burlington, Clinton, Davenport, Dubuque, Fort Madison, Keokuk and Muscatine. Therefore, areas above, within, and below each of the above municipalities were selected for a study to be initiated in the summer of 1969.

The complete study as proposed will be carried on for approximately a four-month period. The first phase of the study was a reconnaissance run of the tributaries in the Iowa-Illinois sector and Mississippi River sampling along transects across the stream in the Dubuque and Clinton, Iowa areas. The second phase of this study will involve complete sampling of the Mississippi River along five or more transects at, above, and below each of the seven cities listed above. The obvious sources of pollution uncovered will be

investigated further both from the ground and from the water. Feed lot and industrial discharges will be investigated along with a tributary sampling program which will be used to determine loadings to the Mississippi River.

The extent of sampling required was unknown at this time and must be determined from the field observations and the condition of the river above and below the individual cities. At each population center, it is planned to establish one sampling range (or cross-section) across the river upstream from all significant pollution sources, and as many as six ranges downstream from pollution sources, the exact number and location of ranges to be determined in the field. Water samples for complete chemical analysis will be collected near mid-depth at five locations across the river at each sampling range daily for five days, and repeated for a second five-day period. Thus, the maximum number of samples would be 35 per day for 10 sampling days, or a total of 350 samples at one population center. Revisions to this sampling plan may be required by field observations. The distances from ranges would be from as little as one mile apart to as much as 7 to 10 miles between some ranges. No records or previous surveys exist that can be used for guidance. Field judgment backed by on-the-spot analysis for selected pollutants will have to be used to determine parameters of choice for the study in each selected area.

The initial Mississippi River Reconnaissance and sampling was accomplished from July 22 to August 1, 1969. Initial reconnaissance included sampling for selected parameters, field observations, and aircraft observations from which conventional color and infrared color photos were taken. The information obtained from this reconnaissance is presented in this report.

MINNESOTA

WISCONSIN

IOWA

ILLINOIS

MISSOURI



Note: River Miles Are Measured
Upstream From The Ohio
River Confluence

MISSISSIPPI RIVER
RECONNAISSANCE — AREA OF STUDY
July 22 To August 1, 1969
BY THE
LAKE MICHIGAN BASIN OFFICE

II. Conclusions and Recommendations

It is concluded that the two-week reconnaissance survey and sampling did reveal evidence of water pollution which is contributing to the degradation of water quality in the Mississippi River and additional study is needed.

It is recommended that:

1. Additional study should be carried out on the Mississippi River between Dubuque and Keokuk which should make use of the findings of this reconnaissance survey to establish areas and zones for later intensive study.

2. A comprehensive industrial and municipal inventory of the area should be compiled. This inventory should show loading and flow data from industrial and municipal sources.

3. A survey of the physical features of the study area should be made by aerial reconnaissance during which color photos and infrared photos should be made. After interpretation of this data, small boats should be used to investigate river conditions, including industrial and municipal outfalls. Waste discharges would be compared with the inventory data and verification of river conditions at the time of the survey.

4. A biological survey based on the findings of the preceding recommendations should be made for benthos. Plankton-algae should also be collected. Benthic organisms would be counted, classified and zones of pollution established.

5. A microbiological survey for Total Coliform, Fecal Coliform and Fecal Streptococcus should be run. Pathogen determinations would be made in downstream areas below municipal discharges. Microbiological laboratory studies should be done in the field or at a Mississippi River location.

6. Periphyton and total carbon techniques should be employed to determine the relative amounts of algae and slime organisms. Glass or plastic substrates would be employed for this study. The placement of these periphyton stations could be determined by utilization of a standard wire mesh cylindrical slime trap such as is used for collecting Sphaerotilus.

7. A complete study as nearly synoptic as possible, should be conducted when the previous recommendations have been accomplished and evaluated. This study would cover all parameters and would be at transects established to give the maximum information with the least amount of work by field and laboratory personnel.

III. Field Observations and Measurements

A. Tributary Reconnaissance

The tributary survey team travelled along the Mississippi River in a truck and a carryall from above Dubuque, Iowa, at Mississippi River Mile 586.5 to below Keokuk, Iowa, at Mississippi River Mile 361.2. Sampling and observations were taken from bridges over tributaries. COD samples and biological samples were taken and preserved for laboratory analysis. Field measurements and observations were recorded on the "Field Data" forms reproduced in this report along with maps of each sampling point to show the specific location for ready reference in ensuing studies. Physical observations and measurements were recorded to help in evaluating the tributary effect on the main stem. Potential sources of pollution were observed and recorded and the sampling point areas were photographed.

This same team then crossed the Mississippi River and pursued the same routine on the Illinois side from the vicinity of East Dubuque, Illinois to Hamilton, Illinois, opposite Keokuk, Iowa.

Biological and COD samples were collected for analysis in the Chicago LMBO laboratories. Fifty-five sampling points were recorded in the tributary sampling run.

The "Field Data" forms in the Appendix reveal that all large streams were above or near flood stage. The dissolved oxygen readings in the tables in the Appendix are questionable for the first two days but all readings may be high due to high-water and turbulence.

B. Main Stem Reconnaissance

One of the survey groups inspected the shoreline along both sides of the River for industrial and domestic waste outfalls. The reach of the river covered either by boat or automobile included sites from Bellevue, Iowa, upstream to the John Deere factory located north of Dubuque (see map). The reach covered in the Clinton area included that area from about Mile 507.0 south of Camanche upstream to Lock and Dam number 13 near Clinton. Due to the high water stage of the River, some outfalls may not have been detected.

Some effluent discharge was noted in the Dubuque area. One of these effluent pipes was noted near the vicinity of the Dubuque sewage disposal plant near Mile 577.6; another was noted near the old shot tower near Mile 580.0. Waste discharge also was noted in the John Deere Company area north of Dubuque and at the Dubuque land fill.

A bottom sample collected a short distance below the Dubuque sewage disposal plant contained ooze and pollution-tolerant sludgeworms.

Generally speaking, the observations indicated a greater discharge of industrial wastes to the Mississippi River in the Clinton area than in the Dubuque area. A number of industrial plants and the Clinton sewage treatment plant are located along Beaver Slough which is on the Iowa side a short distance south of Clinton (see map). A bottom sample collected a short distance downstream from the Clinton sewage disposal plant and a coal unloading plant contained black material and possessed a strong hydrogen sulfide odor. Another plant was discharging large quantities of wastes into Beaver Slough from several effluent pipes. Water samples were collected from six of these outfalls. One of these outfalls

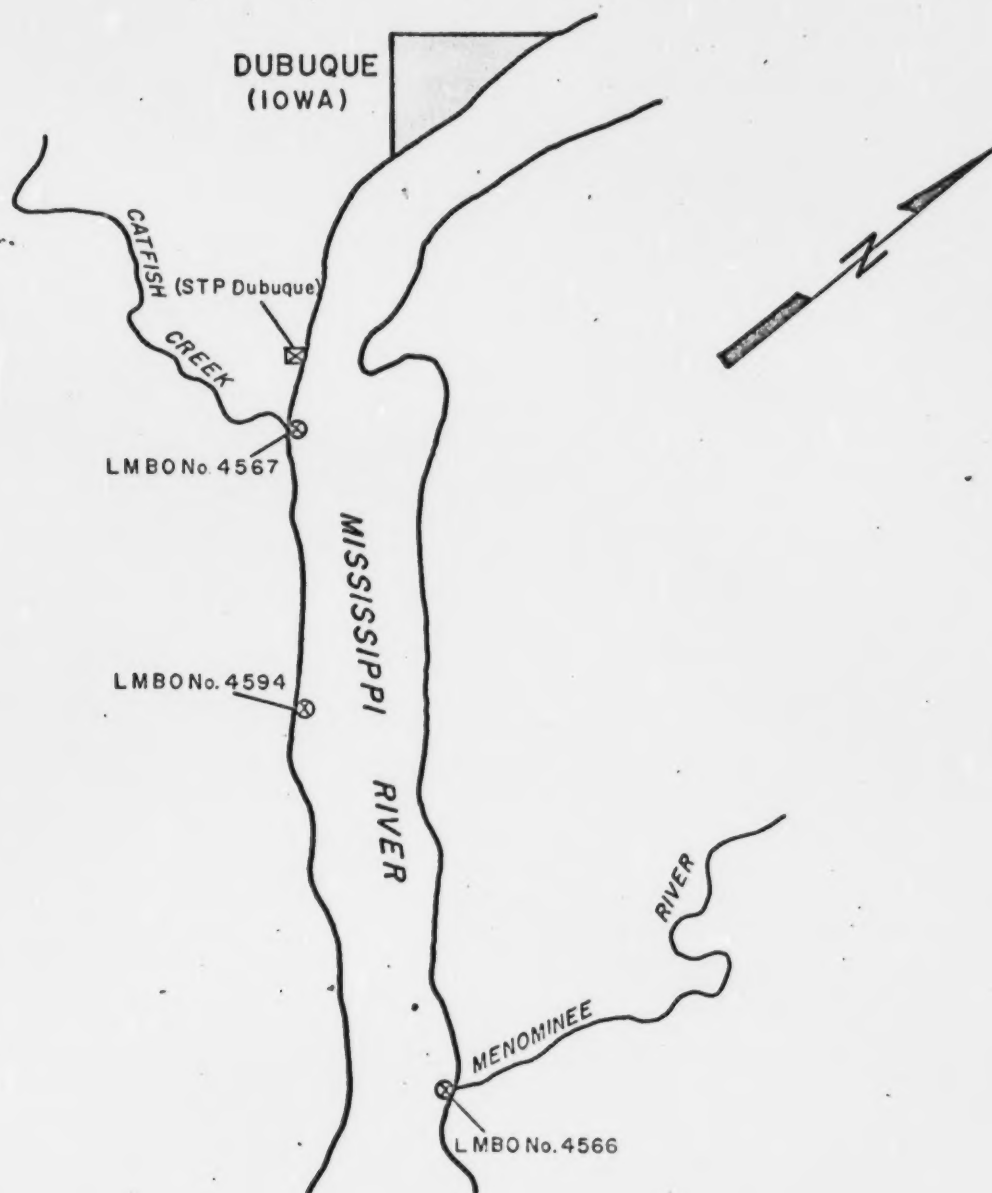
discharged dark brown waste which stained the water of Beaver Slough for several hundred feet downstream. Another plant further downstream also was discharging brown wastes to Beaver Slough. This effluent was hot (49 degrees C.) when compared to normal temperatures of 25 to 30 degrees centigrade.

Aerial reconnaissance of industrial plants, wastes, and sewage disposal plants was conducted in the Dubuque area from a site about two miles downstream from Savannah, Illinois upstream to the site of the John Deere Company north of Dubuque. These photographs were used for establishing transects in the Dubuque area study and to verify the location of waste outfalls.

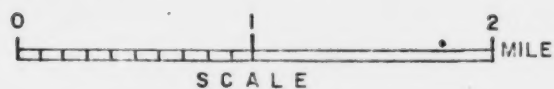
Dissolved oxygen readings and temperature recordings of the River were obtained from stations located along transects* across the River at various points in the Dubuque and Clinton areas. Tables showing these findings are attached. Although there was little difference in dissolved oxygen readings at most stations, there were some exceptions, especially in the Clinton area. Stations 6A and 6B at Mile 510.1 and Stations 7A and 7B at Mile 507.0 were quite low.

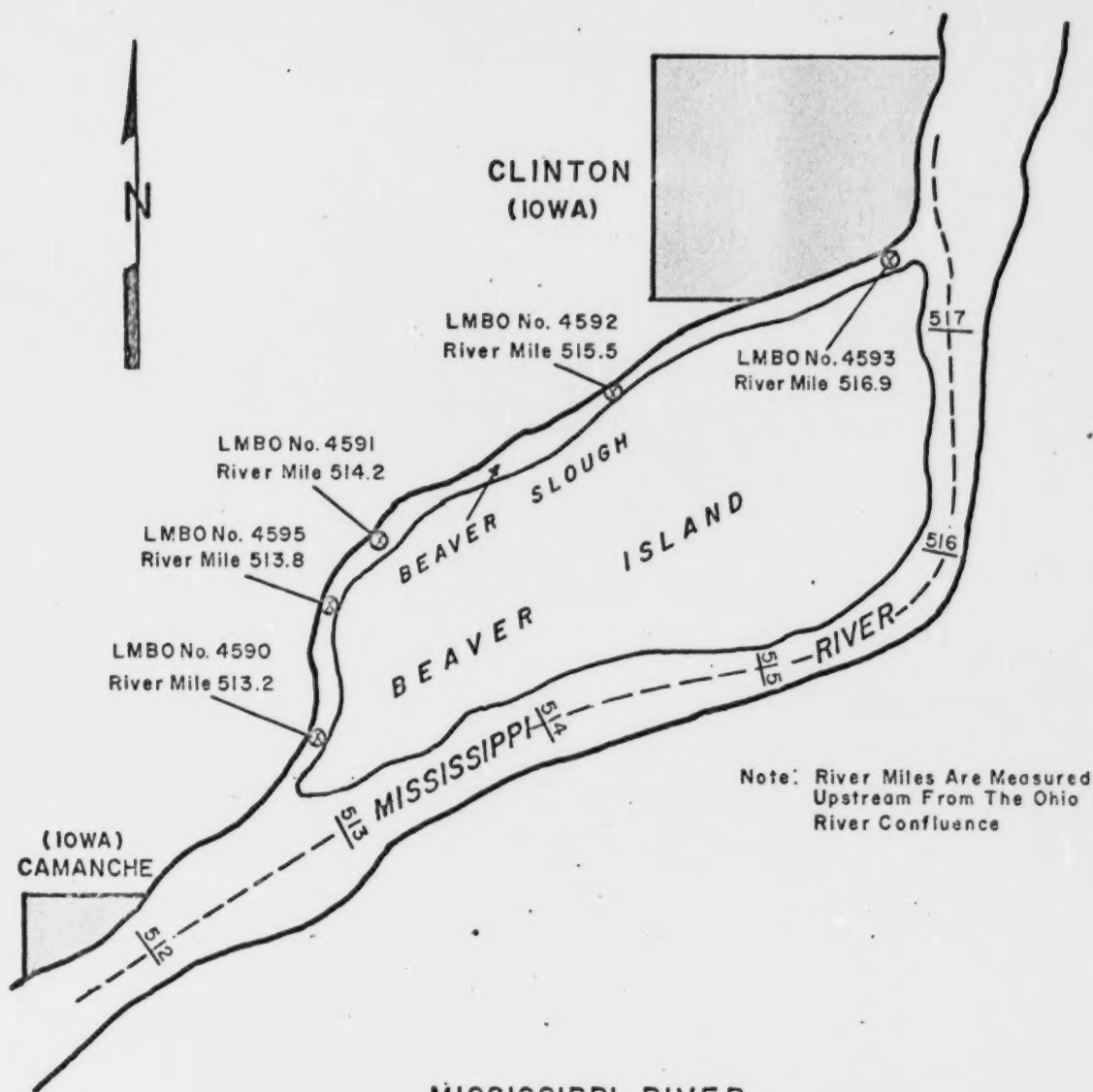
Benthic samples were collected at the various stations which are recorded on the "Field Data" forms.

*Transect is a cross-section of a stream taken along a line between two chosen points, perpendicular to the flow of the stream.



MISSISSIPPI RIVER
SAMPLING POINTS FOR BENTHIC SAMPLES
TAKEN AT MOUTH OF CATFISH CREEK AND
MENOMINEE RIVER AND $1\frac{1}{2}$ MILES BELOW
DUBUQUE SEWAGE TREATMENT PLANT





MISSISSIPPI RIVER
SAMPLING POINTS FOR BENTHIC SAMPLES
TAKEN FROM BEAVER SLOUGH



IV. Laboratory Findings

A. Tributary Samples

The chemical oxygen demand (COD) values for the tributaries were higher between Dubuque and Davenport than any other part of the area studied. The highest COD values were observed in the tributaries in the vicinity of Clinton. The average was twice as high as the average of the remaining tributaries on the Iowa side of the Mississippi River, 80 mg/l and 40 mg/l respectively. The average of all the Illinois tributaries was 35 mg/l.

B. Main Stem Samples

Samples were taken from seven effluent pipes located in Beaver Slough at Clinton. The COD values observed, except for one, ranged from 23 mg/l to 59 mg/l. The sample taken from Number 7 effluent pipe showed a COD value of 18,770 mg/l. This was an effluent from Sethness Corporation.

C. Tributary and Main Stem Biological Samples

Benthos and phytoplankton samples were collected on the reconnaissance study from tributaries of the Mississippi River. Samples were collected from tributaries on both sides of the river from Dubuque, Iowa

to Keokuk, Iowa. A limited number of benthos and phytoplankton samples also were collected from the Mississippi River in the Dubuque and Clinton areas. Phytoplankton samples will be analyzed at a later date. A Table is in the appendix which shows the data recorded from the analysis of benthos samples.

Observations indicated that Catfish Creek at its mouth was in a degraded condition. Only pollution-tolerant sludgeworms were collected there. The Mississippi River tributaries indicated that most tributaries were quite turbid and at a high water stage. Analytical data of the benthos samples and observations in the field indicated that some tributaries at the sites sampled were in a somewhat degraded state. Among these were: Yeager Creek; Elk River at Highway 52; Mill Creek at Highway 30; North Branch of Mill Creek at Highway 67 (a strange odor was noted in the sample); Rock Creek at Highway 67 (oil noted in the bottom material); Devils Creek at Highway 61; Menominee River; Plum River at Highway 84; Spring Creek; Sugar Creek at Highway 84; Rock River at Highway 199; Ellison Creek, Spillman Creek, and Chaney Creek at Highway 96.

V. Appendix

Tabular Data

Field Records

Laboratory Results

Appendix

MISSISSIPPI RIVER RECONNAISSANCE, JULY 22 - AUGUST 1, 1969

MAIN STEM

RIVER MILE 507.0 TO 577.5

Dissolved Oxygen (DO) vs. Water Temperature (°C)
Table of Values Recorded in the Field

<u>Transect and Station</u>	<u>River Mileage</u>	<u>Date</u>	<u>Time</u>	<u>Depth of Sample (m)</u>	<u>Depth of Station (m)</u>	<u>DO (ppm)</u>	<u>Water Temp. (°C)</u>	<u>% of Satura- tion</u>
1A	562.1	7-28-69	1030	1.8	3.6	6.0	27.5	75.0
1B	562.1	7-28-69	1035	2.4	4.8	6.0	27.0	74.0
1C	652.1	7-28-69	1040	2.7	5.4	5.8	32.3	78.4
1D	562.1	7-28-69	1045	3.0	6.0	6.0	31.9	81.2
1E	562.1	7-28-69	1050	2.7	5.4	5.6	35.0	79.0
2A	566.0	7-28-69	1055	5.4	5.4	5.6	40.0	84.8
2B	566.0	7-28-69	1060	5.4	5.4	6.0	40.0	91.0
2C	566.0	7-28-69	1105	1.2	1.2	5.8	39.8	88.0
2D	566.0	7-28-69	1110	6.1	6.1	5.8	39.0	88.0
2E	566.0	7-28-69	1115	7.9	7.9	5.8	39.0	88.0
3A	571.5	7-28-69	1400	5.4	10.9	5.8	37.0	84.2
3B	571.5	7-28-69	1405	3.3	6.4	6.3	28.0	79.8
3C	571.5	7-28-69	1410	3.9	8.1	6.3	35.5	89.3
3D	571.5	7-28-69	1514	1.7	2.7	6.4	36.0	91.5
3E	571.5	7-28-69	1420	0.4	0.9	6.5	35.0	91.7
4A	574.3	7-29-69	1100	1.4	2.7	6.1	24.5	72.2
4B	574.3	7-29-69	1105	1.4	2.7	6.1	23.5	71.0
4C	574.3	7-29-69	1110	1.8	3.6	6.3	24.0	74.2
4D	574.3	7-29-69	1115	4.1	8.2	6.2	24.5	73.4
4E	574.3	7-29-69	1120	1.8	3.6	6.4	24.0	75.2
5A	575.9	7-29-69	1130	2.1	4.2	5.6	25.0	67.8
5B	575.9	7-29-69	1135	3.6	7.3	6.5	24.5	77.0
5C	575.9	7-29-69	1130	4.5	9.1	5.8	24.5	68.7
5D	575.9	7-29-69	1140	3.2	6.4	6.1	24.0	71.9
5E	575.9	7-29-69	1140	1.4	2.7	6.2	24.0	73.0
6A	577.0	7-29-69	1145	2.1	4.2	5.8	25.0	69.0
6B	577.0	7-29-69	1145	3.6	7.3	6.3	24.5	74.5
6C	577.0	7-29-69	1150	1.8	3.6	6.1	24.0	71.8
6D	577.0	7-29-69	1150	1.8	3.6	6.3	24.5	74.7
6E	577.0	7-29-69	1150	1.4	2.7	6.2	24.0	73.0

Appendix

MISSISSIPPI RIVER STUDY, JULY 22 - AUGUST 1, 1969 (Continued)

<u>Transect and Station</u>	<u>River Mileage</u>	<u>Date</u>	<u>Time</u>	<u>Depth of Sample (m)</u>	<u>Depth of Station (m)</u>	<u>DO (ppm)</u>	<u>Water Temp.</u>	<u>% of Satura- tion</u>
Catfish Creek	577.5	7-29-69	1155	1.8	3.6	5.3	24.5	62.8
Menominee River	574.5	7-29-69		0.4	0.9	6.3	21.8	71.6
Beaver Slough	515	7-31-69	1145	1.8	3.6	6.4	24.5	75.8
Beaver Slough	513.08	7-31-69	1135	1.8	3.6	7.3	25.0	87.0
4A	515.25	7-31-69	1200	1.8	3.6	6.5	24.5	76.9
4B	515.25	7-31-69		3.2	6.4	6.6	24.0	77.8
4C	515.25	7-31-69		1.8	3.6	6.7	24.5	79.3
4D	515.25	7-31-69		0.9	1.8	7.0	24.5	83.0
5A	511.8	7-31-69	1107	1.8	3.6	5.9	25.5	71.0
5B	511.8	7-31-69	1114	3.0	6.1	6.5	25.0	75.0
5C	511.8	7-31-69	1120	3.6	7.3	6.9	25.0	82.2
5D	511.8	7-31-69	1128	0.7	1.2	6.8	25.0	81.0
5E	511.8	7-31-69	1134	1.2	2.4	6.4	25.0	76.2
6A	510.1	7-31-69	1045	1.5	3.0	3.6	25.0	42.9
6B	510.1	7-31-69	1050	3.0	6.1	5.7	25.0	68.0
6C	510.1	7-31-69	1054	3.6	7.13	6.4	25.5	77.2
6D	510.1	7-31-69	1059	3.6	7.3	6.8	25.0	81.0
6E	510.1	7-31-69	1101	3.3	6.7	6.5	25.0	77.2
7A	507	7-31-69	1000	1.5	3.0	4.9	24.5	58.0
7B	507	7-31-69	1005	3.0	6.1	5.7	24.5	67.4
7C	507	7-31-69	1010	3.0	6.1	6.5	24.5	77.0
7D	507	7-31-69	1014	3.9	7.9	6.5	24.5	77.0
7E	507	7-31-69	1021	2.1	2.4	6.5	24.0	76.4

Appendix

Field Data Records -
Tributary Reconnaissance

Appendix

First Sampling Day

Wednesday, July 23, 1969

			<u>River Mile</u>
(1)	LMBO#	4485	586.5
(2)	LMBO#	4486	577.6
(3)	LMBO#	4487	567.1
(4)	LMBO#	4488	563.6
(5)	LMBO#	4489	559.6
(6)	LMBO#	4490	555.9
(7)	LMBO#	4491	554.3
(8)	LMBO#	4492	553.9
(9)	LMBO#	4493	548.6

9 Stations

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4485

DATE: July 23, 1969 PICTURE NOS. #10 (Upstream)

STREAM: Little Maquoketa River RIVER MILE: 586.5

LOCATION: Iowa Highway #3

TIME: 11:15 a.m.

WEATHER: Light Precipitation

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Crop land - Domestic ducks
Sandy clay - Pastoral

STREAM BOTTOM: Rocks and Mud

TURBIDITY: Turbid

STREAM DEPTH: 4' (Sample Depth)
1' 6"

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: 70'

VELOCITY: 1.0 fps

CROSS SECTION: 178 □ /

FLOW: 178 cfs

pH: 8.1

WATER TEMP.: 19° C.

AIR TEMP.: 21° C.

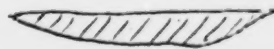
DO: 7.7

COD SAMPLE (H₂SO₄): Sample taken

ALGAE: Sample taken

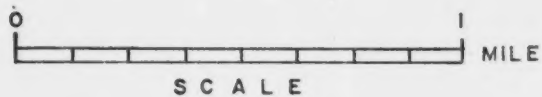
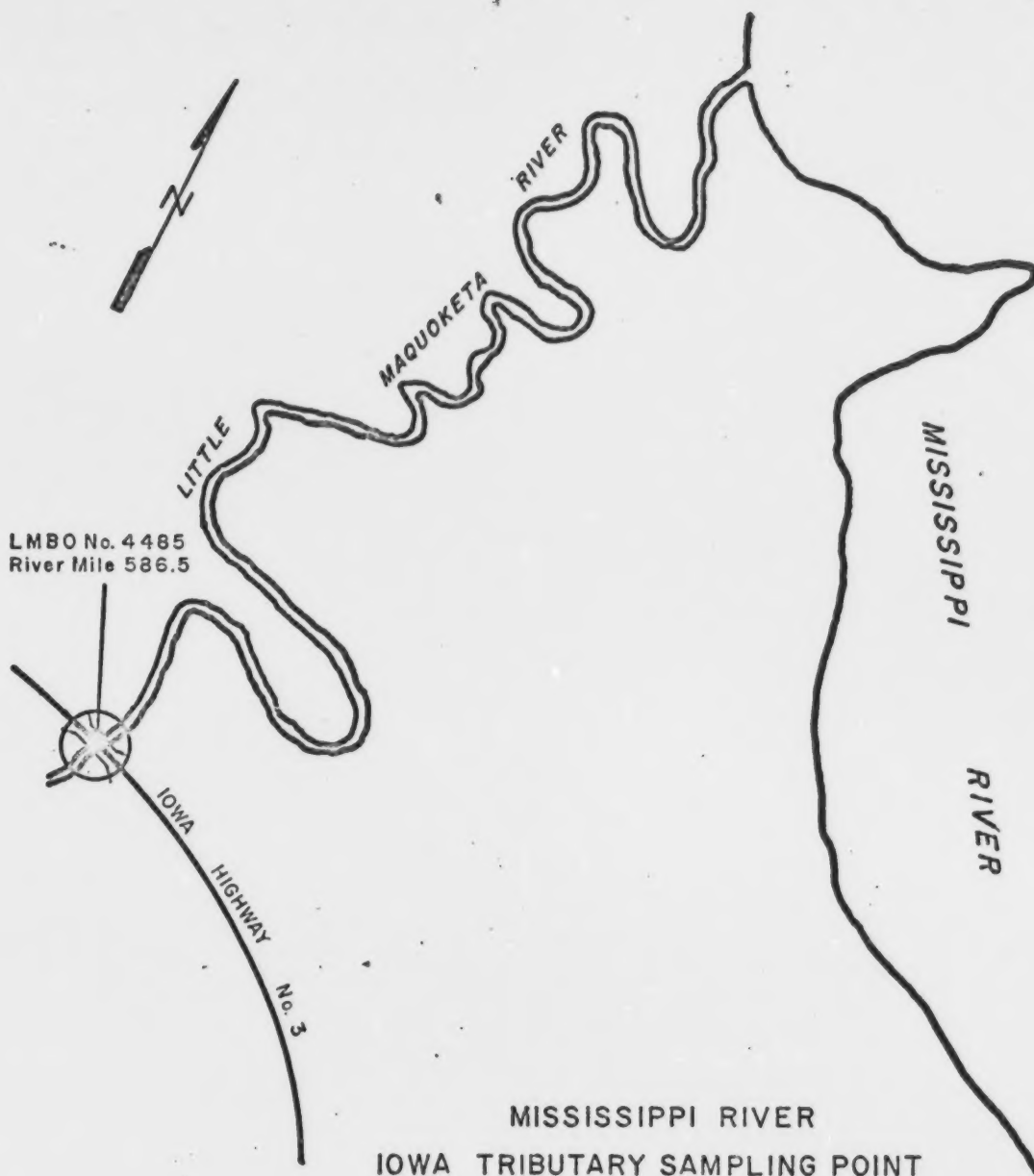
PLANKTON: Sample taken

BOTTOM SAMPLE: Sample taken



Tributary sampling crew:

Viktora
Buchanan
Wojcik
Degutis
Chorowicki



DUBUQUE
(IOWA)

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4486

DATE: July 23, 1969 PICTURE NOS. #11 (Upstream)

STREAM: Catfish Creek RIVER MILE: 577.6

LOCATION: Highway U. S. 151 and U. S. 61, (Iowa)

TIME: 12:25 p.m.

WEATHER: Light overcast

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Woodland and cropland. Sandy clay loam. Downstream is a quarry operation. No outfalls. Stream scoured by high velocity during recent flooding.

STREAM BOTTOM: Rocky and Muddy (Silted)

TURBIDITY: Turbid - Visibility 2"

STREAM DEPTH: 4'

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: 55'

VELOCITY: 0.85 fps

CROSS SECTION: 138 □ /

FLOW: 1.62 cfs

pH: 8.0

WATER TEMP.: 22° C.

AIR TEMP.: 26° C.

DO: 8.0

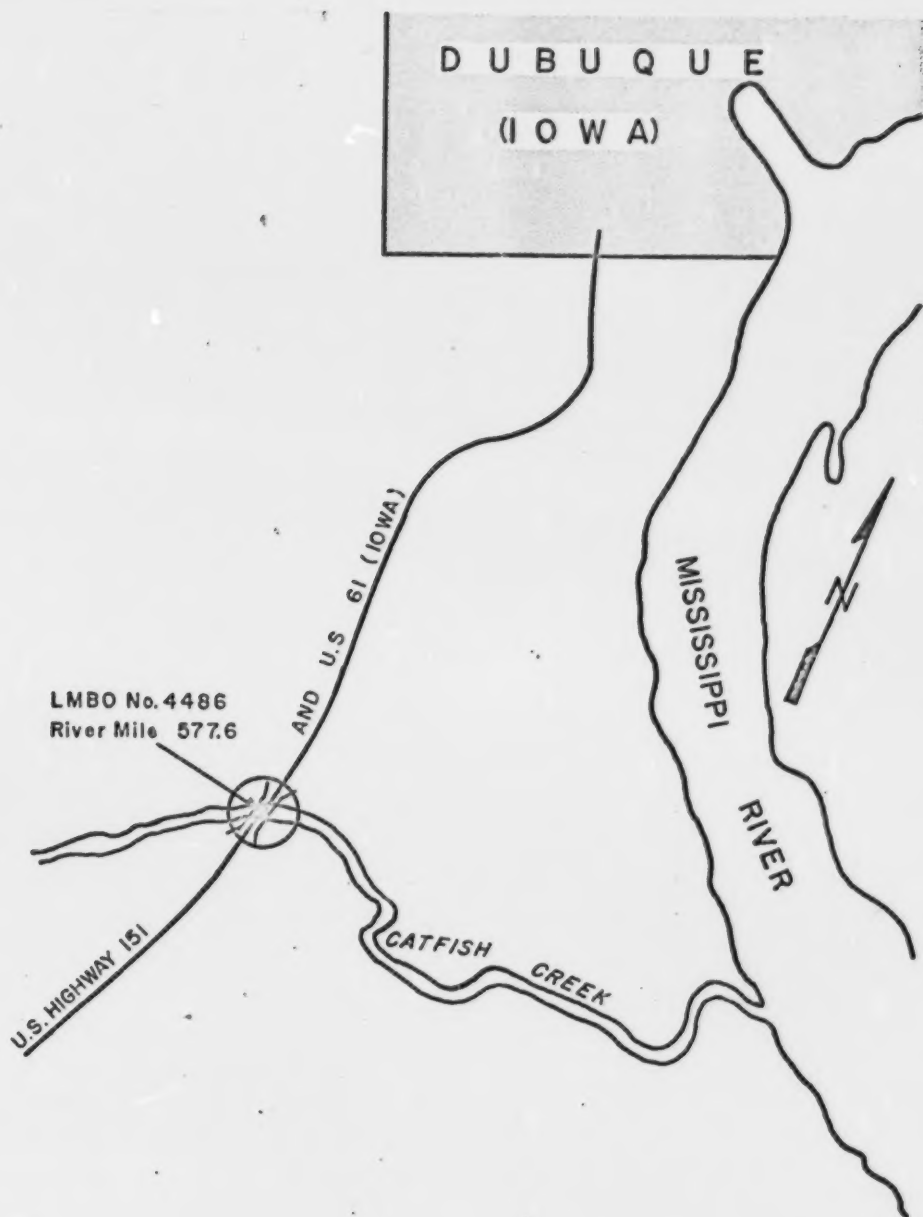
COD SAMPLE (H₂SO₄): Sample taken

ALGAE: None observed - Sample taken

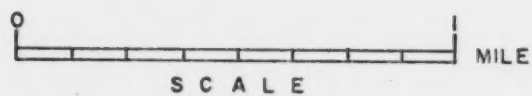
PLANKTON: Sample taken

BOTTOM SAMPLE: One Sample taken.

LMBO #3 (8-5-69)



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday IMBO# 4487

DATE: July 23, 1969 PICTURE NOS. #12, #13

STREAM: Tete DuMort Creek RIVER MILE: 567.1

LOCATION: U. S. Highway 52 in Iowa

TIME: 2:15 p.m.

WEATHER: Clearing after light precipitation

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Agricultural, Sandy Loam, and Clay.

STREAM BOTTOM: Rocky and Ledge Rock. Silt covered. Rapids 180' upstream, some gravel bars.

TURBIDITY: Turbid - Visibility 1.5 feet

STREAM DEPTH: 6'

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: 68'

VELOCITY: 0.3 fps

CROSS SECTION: 264 

FLOW: 79 cfs

pH: 8.25

WATER TEMP.: 18°C.

AIR TEMP.: 31°C.

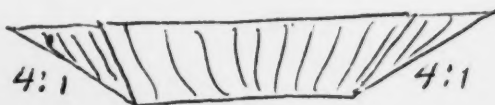
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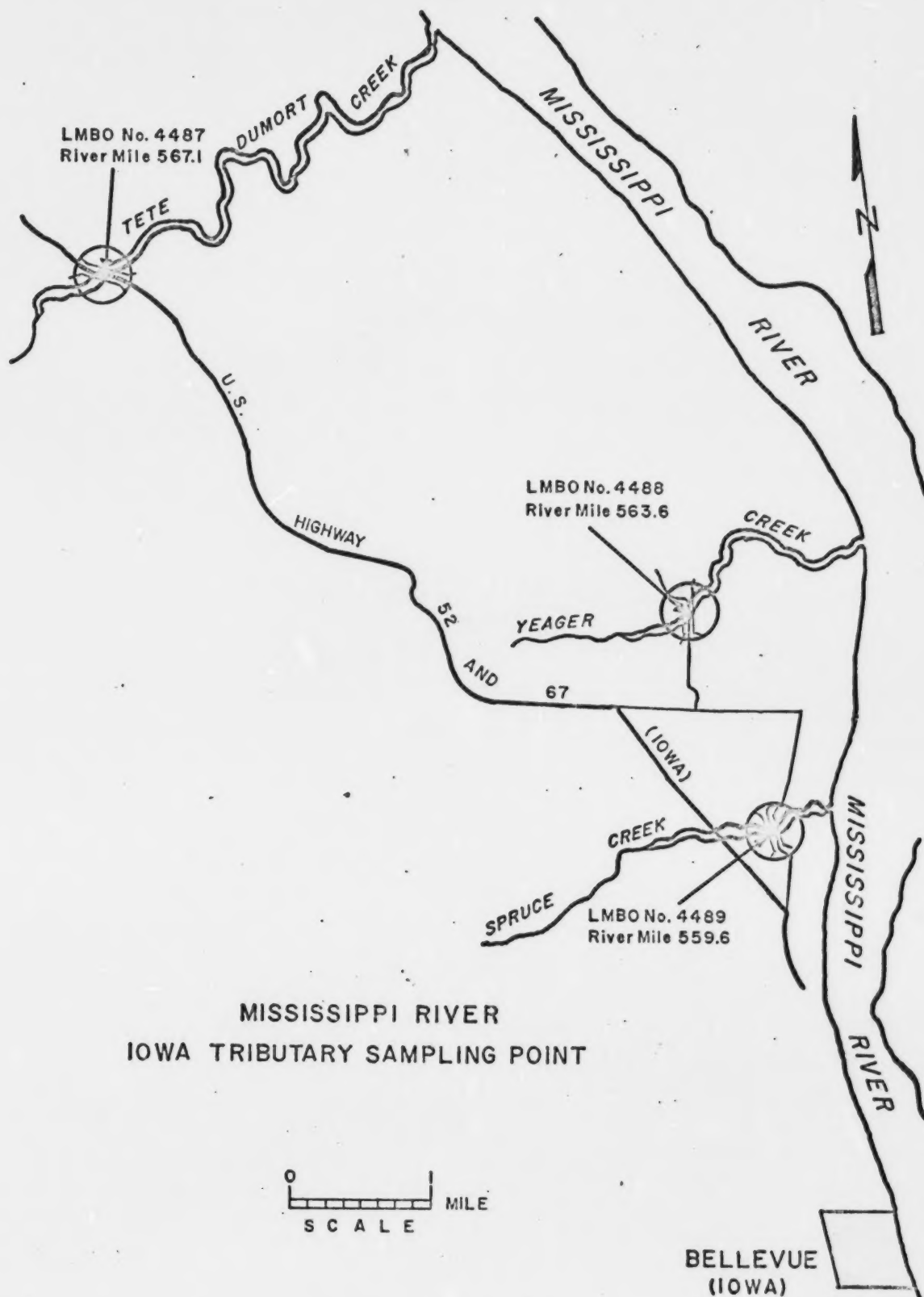
COD SAMPLE (H₂SO₄): Sample taken

ALGAE: None visible, Sample taken.

PLANKTON: None visible, Sample taken.

BOTTOM SAMPLE: Sample taken.





MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4488
DATE: July 23, 1969 PICTURE NOS. #14
STREAM: Yeager Creek RIVER MILE: 563.6
LOCATION: Rural Unimproved Road Bridge (Iowa) near U.S. Highways 52 and 67
TIME: 2:45 p.m. north of Bellevue, Iowa.
WEATHER: Cloudy
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Pasture land, rapids section 340' upstream,
sandy clay soil, area is all agricultural.

STREAM BOTTOM: Gravel, Silt Covered, Many Minnows,
Hellgramites, etc.
TURBIDITY: Clear, visibility 2'
STREAM DEPTH: 6" SKETCHES AND
STREAM WIDTH: 10' OTHER FIELD
NOTES:
VELOCITY: .6 fps
CROSS SECTION: 5 □ /
FLOW: 3 cfs
pH: 8.25
WATER TEMP.: 22° C.
AIR TEMP.: 28° C.
DO: 11.7
COD SAMPLE (H₂SO₄): Sample taken.
ALGAE: None Observed.
PLANKTON: None Observed.
BOTTOM SAMPLE: Sample taken.



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4489

DATE: July 23, 1969 PICTURE NOS. #15

STREAM: Spruce Creek RIVER MILE: 559.6

LOCATION: County Road near U. S. Highways 52 and 67, (Iowa) north of Bellevue,
Iowa.

TIME: 4:10 p.m.

WEATHER: Clear - Sunny

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

All pasture, barnyard, 50 head of cattle at the
bridge sampling site. Clay loam, rocky, thin
soil cover. Possibility of more cattle upstream.

STREAM BOTTOM: Gravel

TURBIDITY: Visibility 8" to 12"

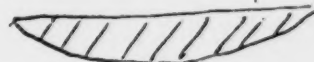
STREAM DEPTH: 12"

STREAM WIDTH: 11'

SKETCHES AND
OTHER FIELD
NOTES:

VELOCITY: 2 fps

CROSS SECTION: 6 □ /



FLOW: 12 cfs

pH: 8.4

WATER TEMP.: 21° C.

AIR TEMP.: 29° C.

DO: 8.4

COD SAMPLE (H₂SO₄): Sample taken.

ALGAE: Sample taken.

PLANKTON: Sample taken.

BOTTOM SAMPLE: Sample taken.

LMBO #3 (8-5-69)

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4490

DATE: July 23, 1969 PICTURE NOS. #16, #17

STREAM: Mill Creek RIVER MILE: 555.9

LOCATION: South of Bellevue, Iowa - U.S. Highways 52 and 67 - near the
Mississippi River.

TIME: 5:05 p.m.

WEATHER: Clearing, light
cumulus clouds

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Farm cultivated fields and
pasturage. Clay loam soil.

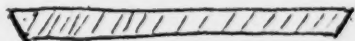
STREAM BOTTOM: Rocky but silt covered.

TURBIDITY: Murky. Visibility less than 12"

STREAM DEPTH: 12"

STREAM WIDTH: 40'

VELOCITY: 0.7 fps

CROSS SECTION: 40 

FLOW: 27 cfs

pH: 8.1

WATER TEMP.: 19° C.

AIR TEMP.: 31° C.

DO: 11.3

COD SAMPLE (H₂SO₄): Sample taken.

ALGAE: Observed and taken.

PLANKTON: Sample taken.

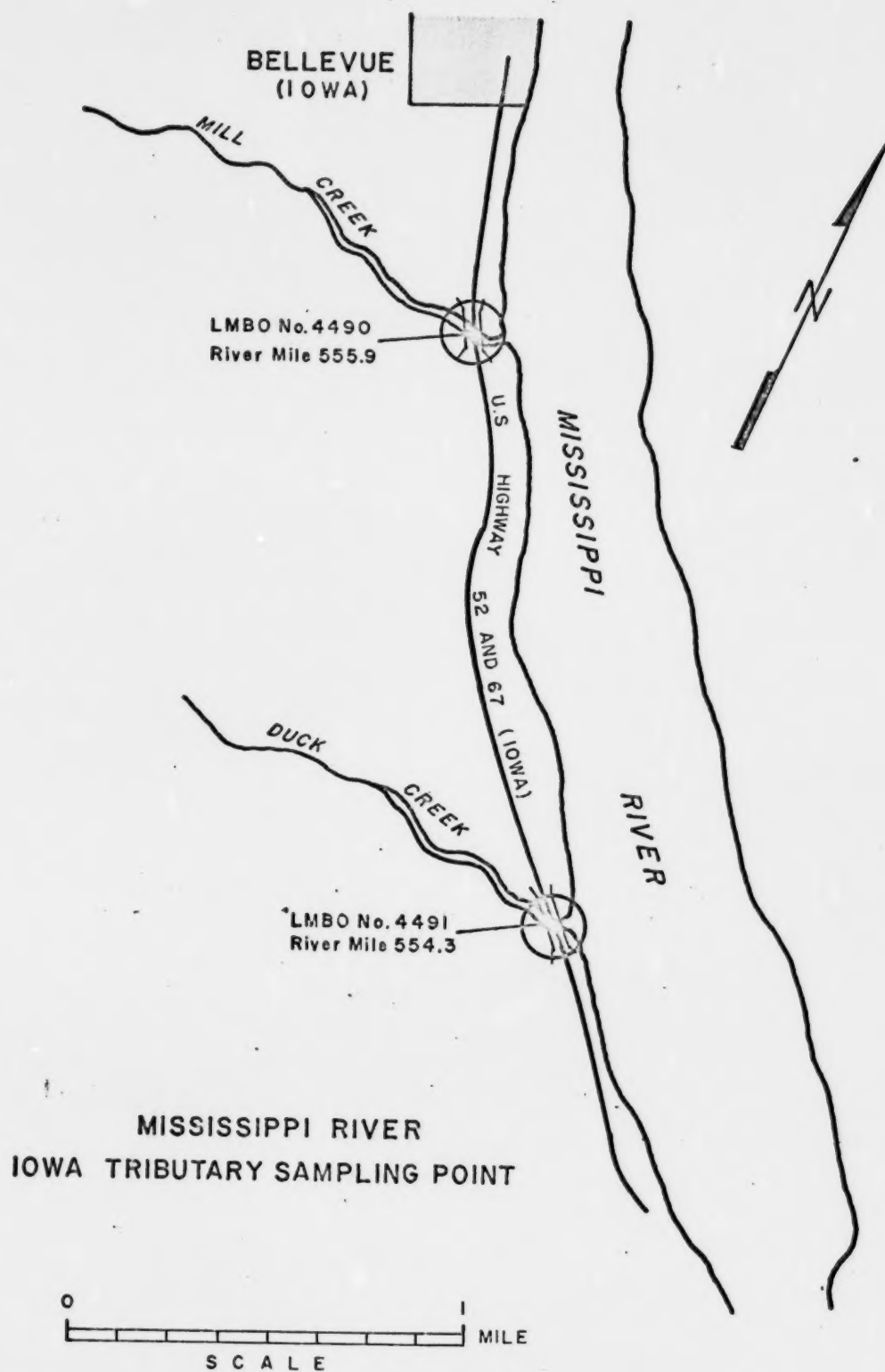
BOTTOM SAMPLE: Sample taken.

SKETCHES AND
OTHER FIELD
NOTES:

Bellevue Sewage Treatment Plant
is 300' in from Mississippi at
south edge of town (downstream).

Tributary to Mill Creek observed
and measured at 5:25 p.m.
18' wide; 1' deep; 1 fps; 18 cfs.

Fence posts and auto body parts
in this tributary.
Tributary Picture #16.



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4491

DATE: July 23, 1969 PICTURE NOS. #18

STREAM: Duck Creek RIVER MILE: 554.3

LOCATION: U.S. Highways 52 and 67 south of Bellevue, Iowa

TIME: 5:40 p.m.

WEATHER: Warm, light cumulus clouds

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Crop land and pasturage. Soil is
clay loam, typical crop land.

STREAM BOTTOM: Gravelly bottom, clear, rubber tires, scrap iron, and
cattle in the stream.

TURBIDITY: Clear

STREAM DEPTH: 6" Average

STREAM WIDTH: 10'

VELOCITY: 1.8 fps

CROSS SECTION: 5 □ /

FLOW: 9 cfs

pH: 8.3

WATER TEMP.: 23° C.

AIR TEMP.: 27° C.

DO: 11.4

COD SAMPLE (H₂SO₄): Taken

ALGAE: Present. Observed and
taken. (Cladophora)

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Taken.

SKETCHES AND
OTHER FIELD
NOTES:



Exposed gravel bar in stream

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4492

DATE: July 23, 1969 PICTURE NOs. #19

STREAM: Pleasant Creek RIVER MILE: 553.9

LOCATION: Bridge on Route U. S. 52 and U.S. 67 south of Bellevue, Iowa.

TIME: 6:10 p.m.

WEATHER: Sunny-light clouds-dusk

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: High silt load after-effects of flood.

TURBIDITY: Turbid, Visibility 6"

STREAM DEPTH: 3'

STREAM WIDTH: 36'

SKETCHES AND
OTHER FIELD
NOTES:

VELOCITY: 0.25 fps

CROSS SECTION: 81 □ /

FLOW: 20 cfs

pH: 8.15

WATER TEMP.: 25° C.

AIR TEMP.: 26° C.

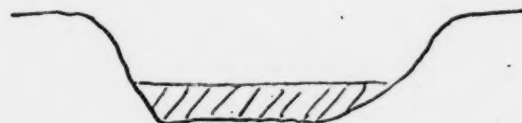
DO: 8.5

COD SAMPLE (H₂SO₄): Sample taken

ALGAE: None Observed

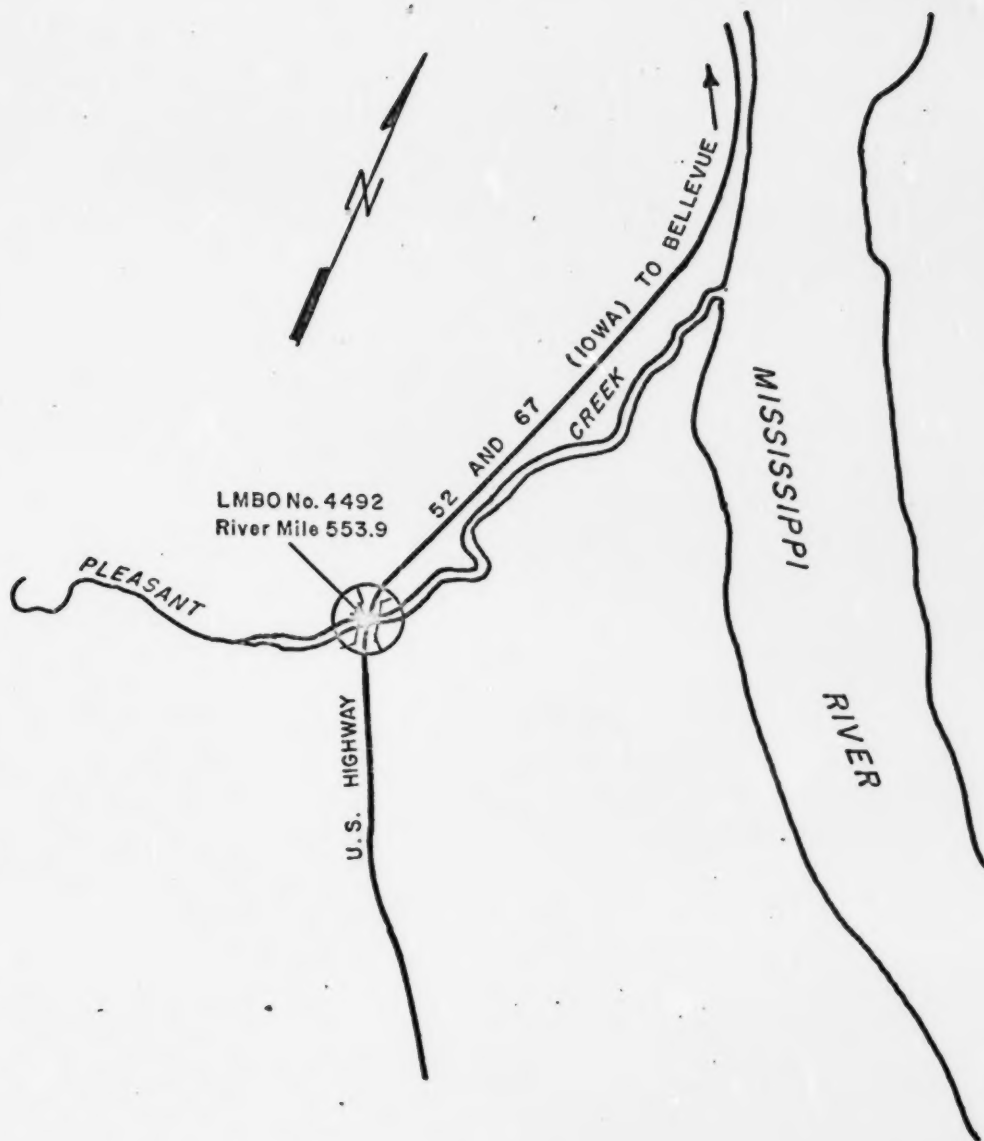
PLANKTON: Sample taken.

BOTTOM SAMPLE: Sample taken.

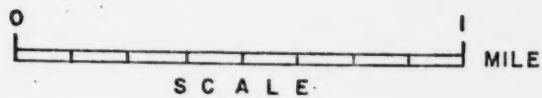


Debris in stream from flood waters.
Corrugated steel culvert 24' long
by 18" diameter washed out and
loose in stream about 200' upstream
from U. S. 52 bridge.

LMBO #3 (8-5-69)



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4493

DATE: July 23, 1969 PICTURE NOS. #20 Upstream, #21 Log Jam

STREAM: Maquoketa River RIVER MILE: 548.6

LOCATION: Bridge on Route U. S. 52 and U.S. 67 south of Bellevue, Iowa
north of Sabula, Iowa.

TIME: 6:30 p.m.

WEATHER: Light overcast-dusky

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Sandy clay loam. Woods and
cultivated farm land.

STREAM BOTTOM: Silted black sandy soil.

TURBIDITY: Very high

STREAM DEPTH: 6'

STREAM WIDTH: 280'

VELOCITY: 5.5 fps

CROSS SECTION: 1620 □ /

FLOW: 8,900 cfs

pH: 8.1

WATER TEMP.: 22° C.

AIR TEMP.: 27° C.

DO: 8.4

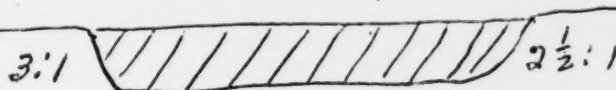
COD SAMPLE (H₂SO₄): Taken

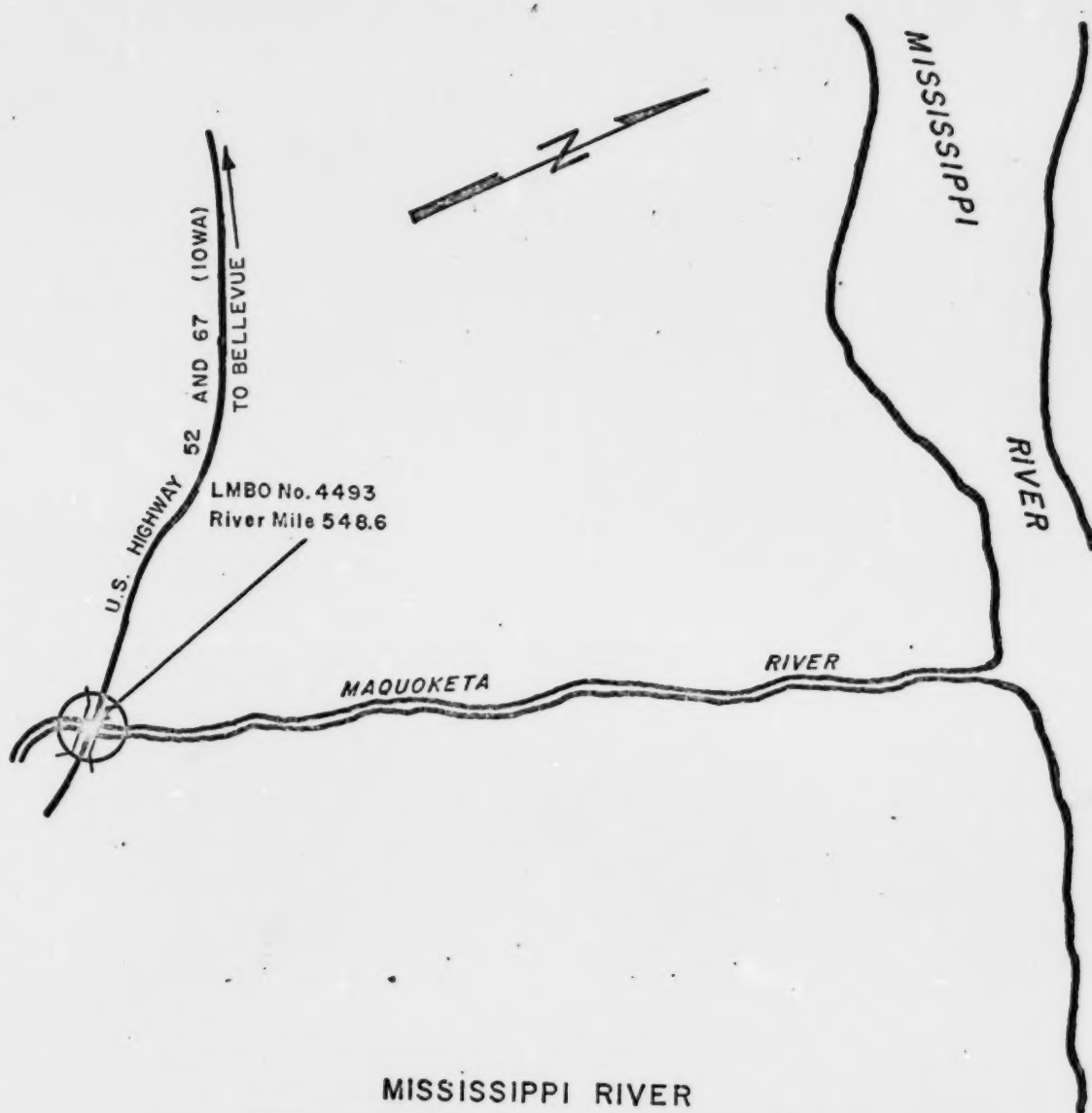
ALGAE: Scoured clean by recent rains.

PLANKTON: Taken

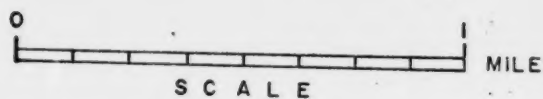
BOTTOM SAMPLE: Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



Second Sampling Day
Thursday, July 24, 1969

			<u>River Mile</u>
(1a)	LMBO#	4494	540.2
(2a)	LMBO#	4495	528.5
(3a)	LMBO#	4496	526.5
(4a)	LMBO#	4497	512.6
(5a)	LMBO#	4498	512.6
(6a)	LMBO#	4499	506.6
(7a)	LMBO#	4500	506.6
(8a)	LMBO#	4501	498.1
(9a)	LMBO#	4502	490.8
(10a)	LMBO#	4503	490.1
(11a)	LMBO#	4504	487.7
(12a)	LMBO#	4505	455.7

12 Stations

MISSISSIPPI TRIBUTARIES -- FIELD DATA

DAY: Thursday LMBO# 4494

DATE: July 24, 1969 PICTURE NOS. #22a, #23a

STREAM: Beaver Creek RIVER MILE: 540.2

LOCATION: U. S. Highway Bridge, Routes U. S. 52 and 67 south of Bellevue, Ia.

TIME: 10:15 a.m.

WEATHER: Clear-bright sunny skies

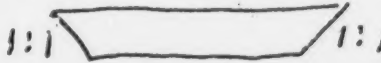
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Clay loam

STREAM BOTTOM: Clay

TURBIDITY: High turbidity, Visibility 3"

STREAM DEPTH: 1' 6" SKETCHES AND
STREAM WIDTH: 10' OTHER FIELD
NOTES:

VELOCITY: .45 fps

CROSS SECTION: 12.0 

FLOW: 5.5 cfs

pH: 7.8

WATER TEMP.: 17° C.

AIR TEMP.: 28° C.

DO: 7.8

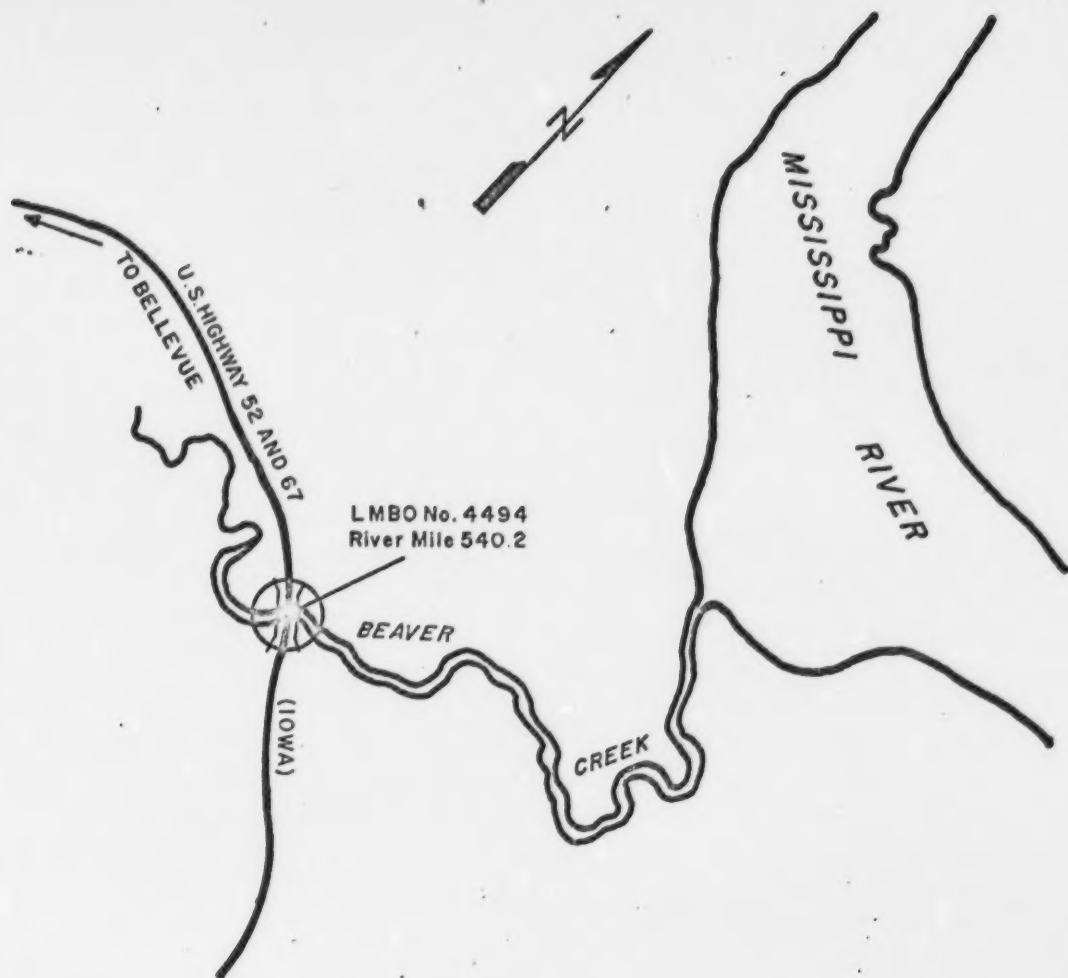
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: None visible, Sample taken.

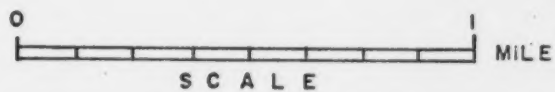
PLANKTON: Sample taken.

BOTTOM SAMPLE: Sample taken.

LMBO #3 (8-5-69)



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4495

DATE: July 24, 1969 PICTURE NOS. #24, #25(Upstream)

STREAM: Elk River RIVER MILE: 528.5

LOCATION: Highway Bridge on U. S. Highway 67 south of Bellevue, Iowa.

TIME: 10:40 a.m.

WEATHER: Clear - Bright sunny skies.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Agricultural, cultivated fields -
cropland. Clay loam soil. Live
turtle swimming in river.

STREAM BOTTOM: Clay

TURBIDITY: High turbidity. Heavy silt load.

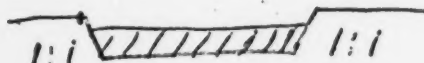
STREAM DEPTH: 2'

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: 45'

VELOCITY: 0.5 fps

CROSS SECTION: 86 □ /



FLOW: 40 cfs

pH: 8.2

WATER TEMP.: 21° C.

AIR TEMP.: 28° C.

DO: 8.4

COD SAMPLE (H₂SO₄): Taken.

ALGAE: No sample, Not evident.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

LMDO #3 (8-5-69)

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4496

DATE: July 24, 1969 PICTURE NOS. #26a, #27a

STREAM: Heldt Ditch RIVER MILE: 526.5

LOCATION: Side Road from U. S. Highway 67 south of Bellevue, Iowa.
Second bridge from Highway 67.

TIME: 11:05 a.m.

WEATHER: Clear-Bright sunny skies.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Wooded, pasture land, crop land,
below hilly country adjacent.

STREAM BOTTOM: Clay (covered with gravel)

TURBIDITY: Clear

STREAM DEPTH: 3"

STREAM WIDTH: 18'

VELOCITY: 0.9 fps

CROSS SECTION: 4.5 

FLOW: 4 cfs

pH: 8.5

WATER TEMP.: 23° C.

AIR TEMP.: 28° C.

DO: 11.8

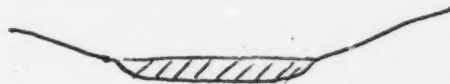
COD SAMPLE (H₂SO₄): Sample taken

ALGAE: Green Algae on Rocks (Sampled)

PLANKTON: Sampled

BOTTOM SAMPLE: Sampled

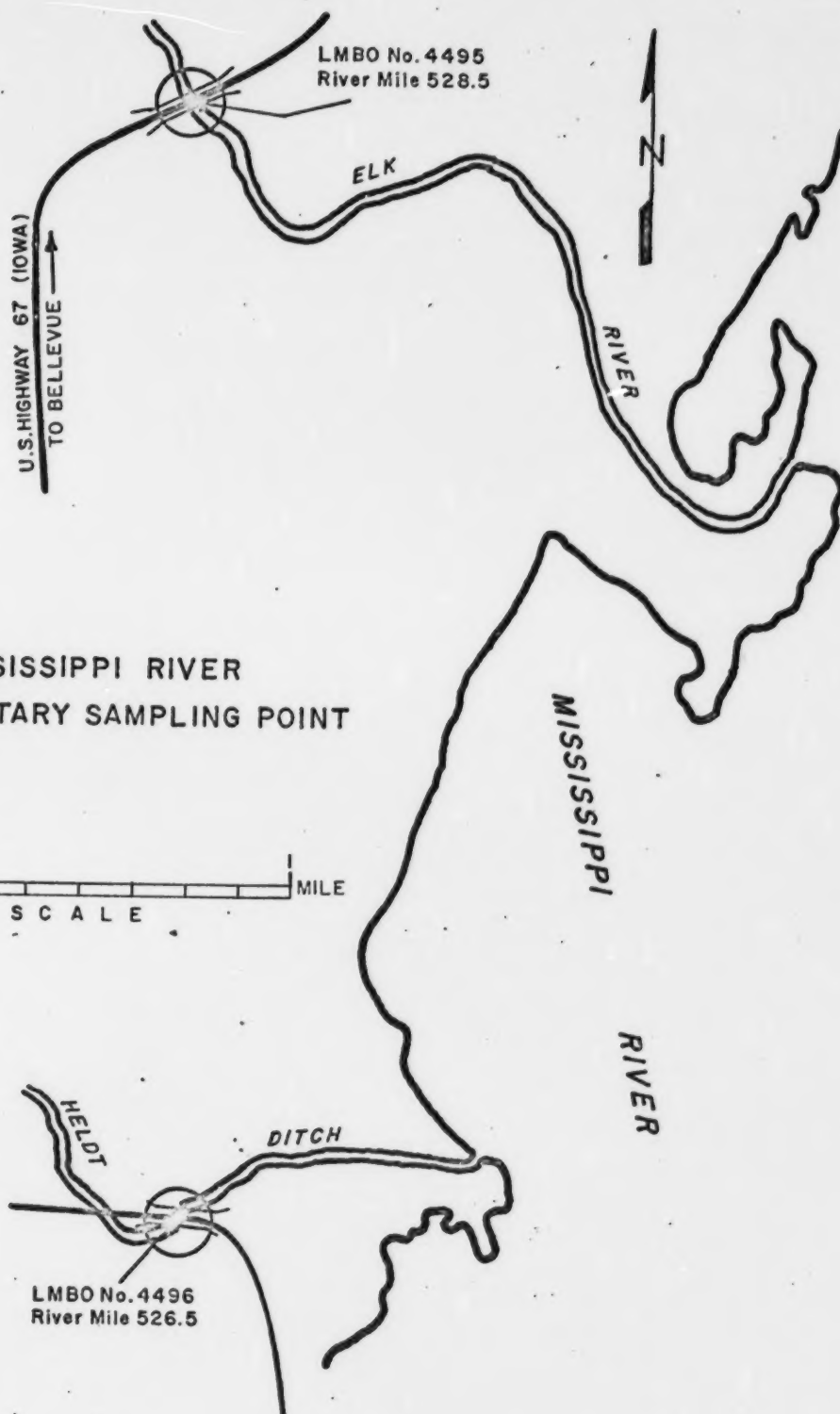
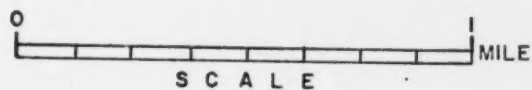
SKETCHES AND
OTHER FIELD
NOTES:



Stock in pasture and stream

LMBO #3 (8-5-69)

MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4497

DATE: July 24, 1969 PICTURE NOS. #28a, #29a

STREAM: Mill Creek - North Branch RIVER MILE: 512.6

LOCATION: Highway U. S. 30 South of Clinton, Iowa

TIME: 11:55 a.m.

WEATHER: Clear-Bright and Sunny

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Thin loam over clay. Commercial
grain preparation plant $\frac{1}{2}$ mile
upstream. Heavy silt load in
stream.

STREAM BOTTOM: Clay

TURBIDITY: High, Visibility 6"

STREAM DEPTH: 3'

STREAM WIDTH: 45'

VELOCITY: 0.4 fps

CROSS SECTION: 100 

FLOW: 40 cfs

pH: 8.1

WATER TEMP.: 23° C.

AIR TEMP.: 28° C.

DO: 8.4

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

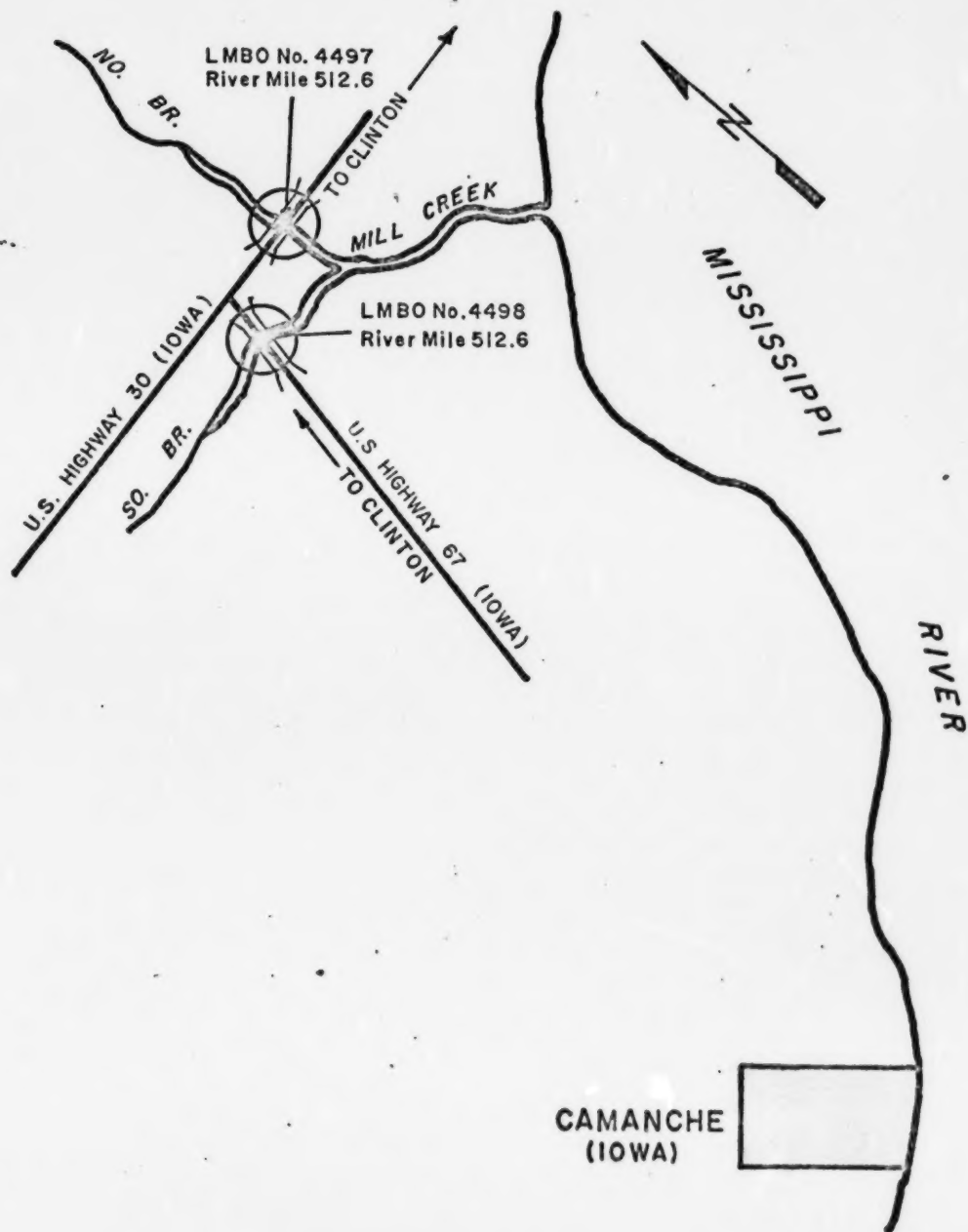
MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4498
DATE: July 24, 1969 PICTURE NOS. #30a, #31a
STREAM: Mill Creek - South Branch RIVER MILE: 512.6
LOCATION: U. S. Highway 67 Southwest of Clinton, Iowa
TIME: 12:25 p.m.
WEATHER: Clear-Bright sun
SOIL TYPE AND OTHER PHYSICAL OBSERVATIONS: Clay*

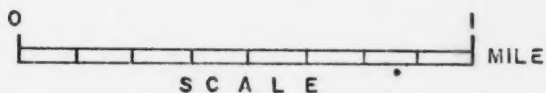
STREAM BOTTOM: Clay.
TURBIDITY: Clear. Some bubbles
STREAM DEPTH: 4"
STREAM WIDTH: 5'
VELOCITY: 0.5 fps
CROSS SECTION: 2.5 
FLOW: 0.5 cfs
pH: 8.2
WATER TEMP.: 28° C.
AIR TEMP.: 29° C.
DO: 13.2 (?)
COD SAMPLE (H₂SO₄): Taken.
ALGAE: Abundant-green. Sample taken
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

*Odor from bottom sediment is
marshy. Lage capacity DuPont
Plant is downstream from sampling
point. Many industries developing
in this area on former farm land.



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4499

DATE: July 24, 1969 PICTURE NOS. #32, #33

STREAM: Rock Creek RIVER MILE: 506.6

LOCATION: U. S. Highway 67 south of Camanche, Iowa

TIME: 12:50 p.m.

WEATHER: Clear and Sunny.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Clay. Agricultural land in
cultivation and in pasture.
Extensive marsh areas upstream.

STREAM BOTTOM: Mud.

TURBIDITY: High. 4" visibility.

STREAM DEPTH: 2.0'

STREAM WIDTH: 40.0'

VELOCITY: 0.13 fps

CROSS SECTION: 62 □ /

FLOW: 8.0 cfs

pH: 7.9

WATER TEMP.: 28° C.

AIR TEMP.: 30° C.

DO: 11.0 (?)

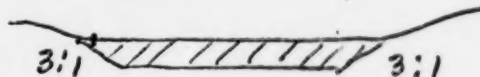
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken. Floating and
long stemmed aquatic plants.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:



Very small stream gradient

LMBO #3 (8-5-69)

LMBO No. 4499
River Mile 506.6

TO CAMANCHE

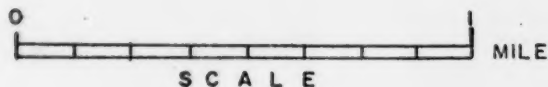
U.S. HIGHWAY 67 (IOWA)

ROCK

CREEK

MISSISSIPPI
RIVER

MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday IMBO# 4500

DATE: July 24, 1969 PICTURE NOS. #34a, #35a, #36a

STREAM: Wapsipinicon River RIVER MILE: 506.6

LOCATION: U. S. Highway 67 south of Camanche, Iowa

TIME: 1:25 p.m.

WEATHER: Clear and Sunny.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Woodsy - Swampy area.

STREAM BOTTOM: Clay

TURBIDITY: Very high.

STREAM DEPTH: 9'

STREAM WIDTH: 532' (+)

VELOCITY: 5.5 fps

CROSS SECTION: 4,250 $\square /$

FLOW: 23,375 cfs

pH: 8.1

WATER TEMP.: 24° C.

AIR TEMP.: 29° C.

DO: 9.7

COD SAMPLE (H_2SO_4): Sample Taken.

ALGAE: None Visible.

PLANKTON: Sample Taken.

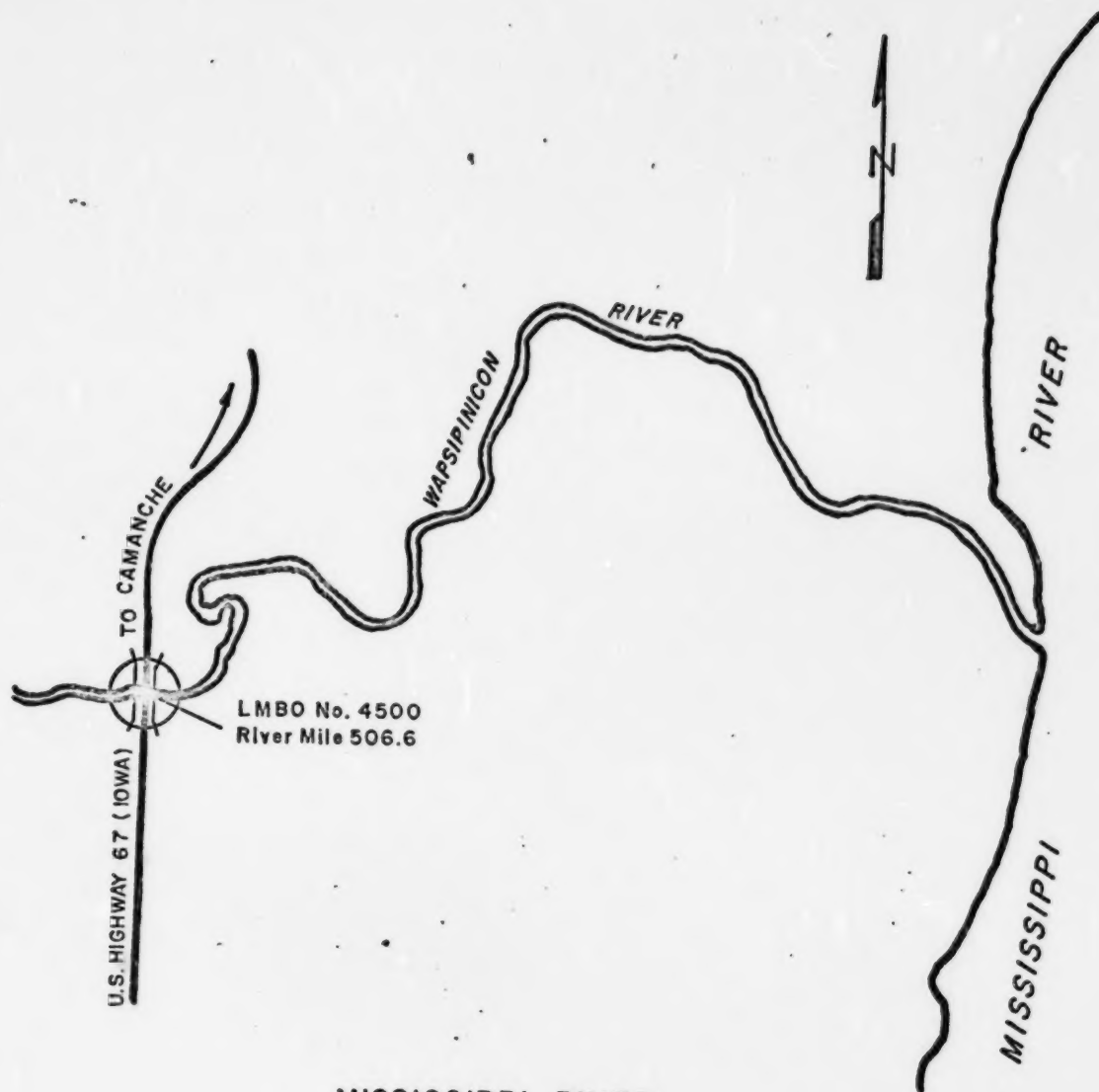
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

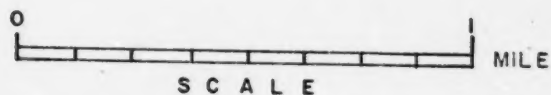
Three separate bridges



River was at flood stage. Highway 67 was partly under water. Low land on both sides was under several feet of water.



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4501

DATE: July 24, 1969 PICTURE NOS. #1b, #2b on new roll.

STREAM: McCarty Creek RIVER MILE: 498.1

LOCATION: Near U. S. Highway 67 on County "A" - North of LeClaire, Iowa

TIME: 3:10 p.m.

WEATHER: Clear and Sunny.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Sandy loam on rock base.

STREAM BOTTOM: Rocky

TURBIDITY: Milky, Visibility 3"

STREAM DEPTH: 4" Average

STREAM WIDTH: 20'

VELOCITY: 2.0 fps

CROSS SECTION: 5.0 ☒ /

FLOW: 10.0 cfs

pH: 8.25

WATER TEMP.: 24° C.

AIR TEMP.: 29° C.

DO: 12.2

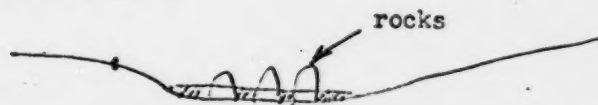
COD SAMPLE (H₂SO₄): Sampled

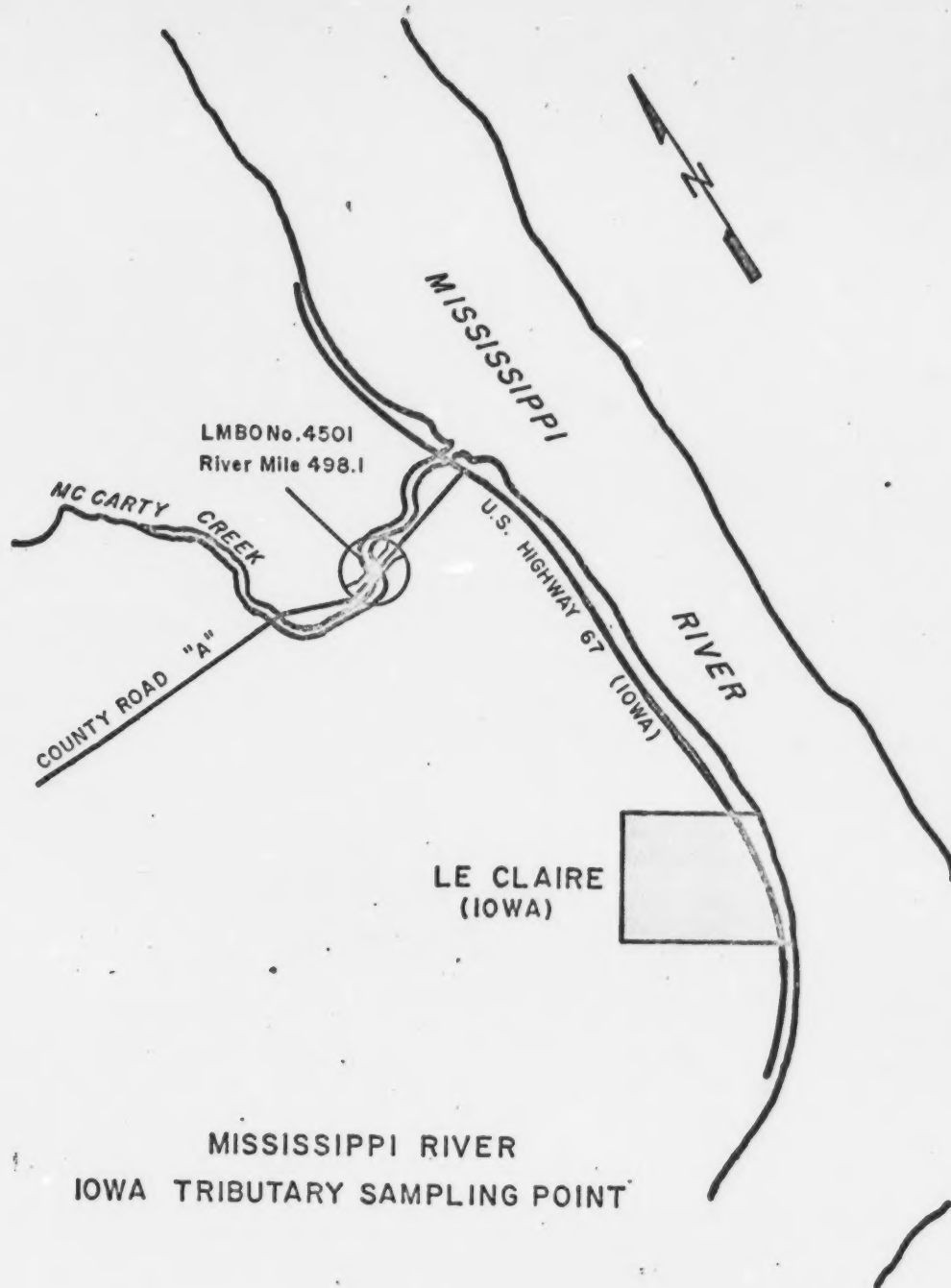
ALGAE: Plentiful - Sampled.

PLANKTON: Sampled.

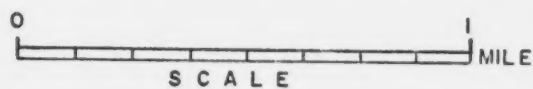
BOTTOM SAMPLE: Sampled.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4502

DATE: July 24, 1969 PICTURE NOS. #3b

STREAM: Pigeon Creek RIVER MILE: 490.8

LOCATION: U. S. Highway #67, north of Bettendorf, Iowa

TIME: 3:45 p.m.

WEATHER: Sunny, clear

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Black alluvial river bottom and high hills to the west of the flat. Field tile outfalls draining into high sided ditch (stream).

STREAM BOTTOM: Gravelly.

TURBIDITY: Clear

STREAM DEPTH: 4"

STREAM WIDTH: 4'

VELOCITY: 1.0 fps

CROSS SECTION: 1.5 

FLOW: 1.0 cfs

pH: 8.1

WATER TEMP.: 23° C.

AIR TEMP.: 29° C.

DO: 13.5

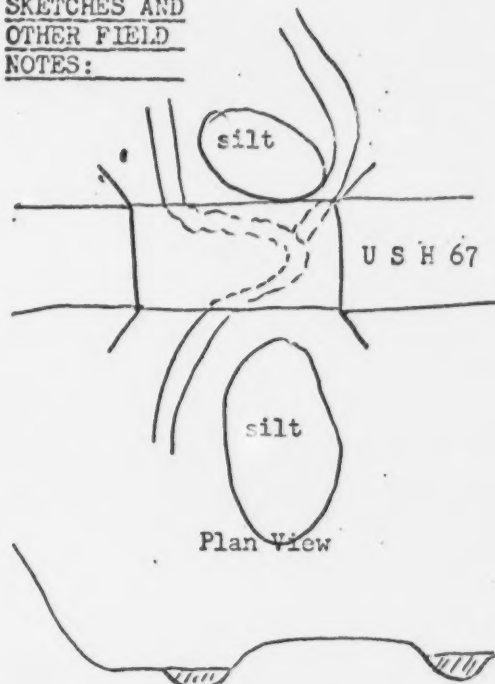
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:



LMBO #3 (8-5-69)

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4503

DATE: July 24, 1969 PICTURE NOS. #4b, #5b

STREAM: Crow Creek RIVER MILE: 490.1

LOCATION: U.S. Highway 67 north of Bettendorf, Iowa

TIME: 4:05 p.m.

WEATHER: Warm, Sunny, Clear Skies.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Alluvial plain of shallow soil
over solid ledge rock.

STREAM BOTTOM: Rocky (Cuts across rock strata to the Mississippi River)

TURBIDITY: 6" Carrying some silt.

STREAM DEPTH: 1'

STREAM WIDTH: 24' total of
2 separate streams

VELOCITY: 1.5 fps

CROSS SECTION: 10 ☒ /

FLOW: 15 cfs

pH: 8.25

WATER TEMP.: 24° C.

AIR TEMP.: 30° C.

DO: 10.9

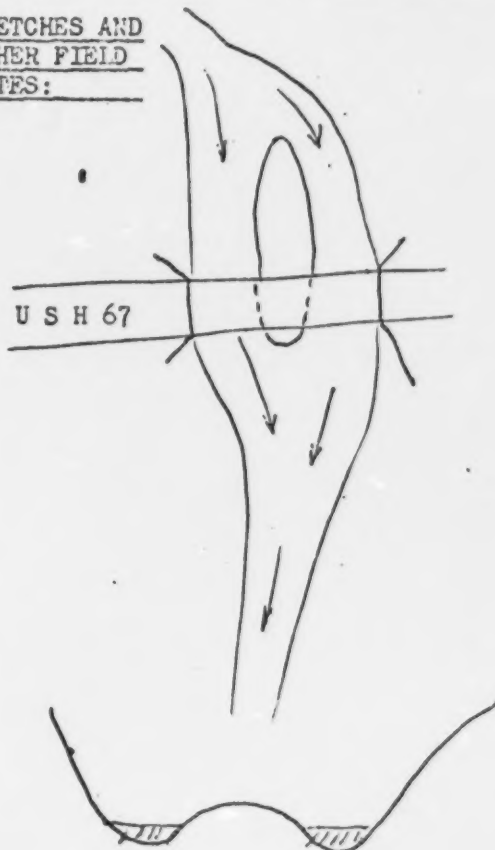
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.
Some long stemmed types.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:



LMBO #3 (8-5-69)

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4504

DATE: July 24, 1969 PICTURE NOS. #6b, #7b

STREAM: Duck Creek RIVER MILE: 487.7

LOCATION: On U. S. Highway 67, in Riverdale, near Bettendorf, Iowa

TIME: 4:25 p.m.

WEATHER: Sunny and Clear

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Sandy loam over ledge rock.
Agricultural, cultivated, upstream.
Residential and Industrial downstream.

STREAM BOTTOM: Solid ledge rock

TURBIDITY: 6" visibility

STREAM DEPTH: 1.5'

STREAM WIDTH: 60'

VELOCITY: 2.0 fps

CROSS SECTION: 81 ☒ /

FLOW: 162 cfs

pH: 8.0

WATER TEMP.: 24° C.

AIR TEMP.: 29° C.

DO: 10.7

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Evidence of Algae, Sampled.

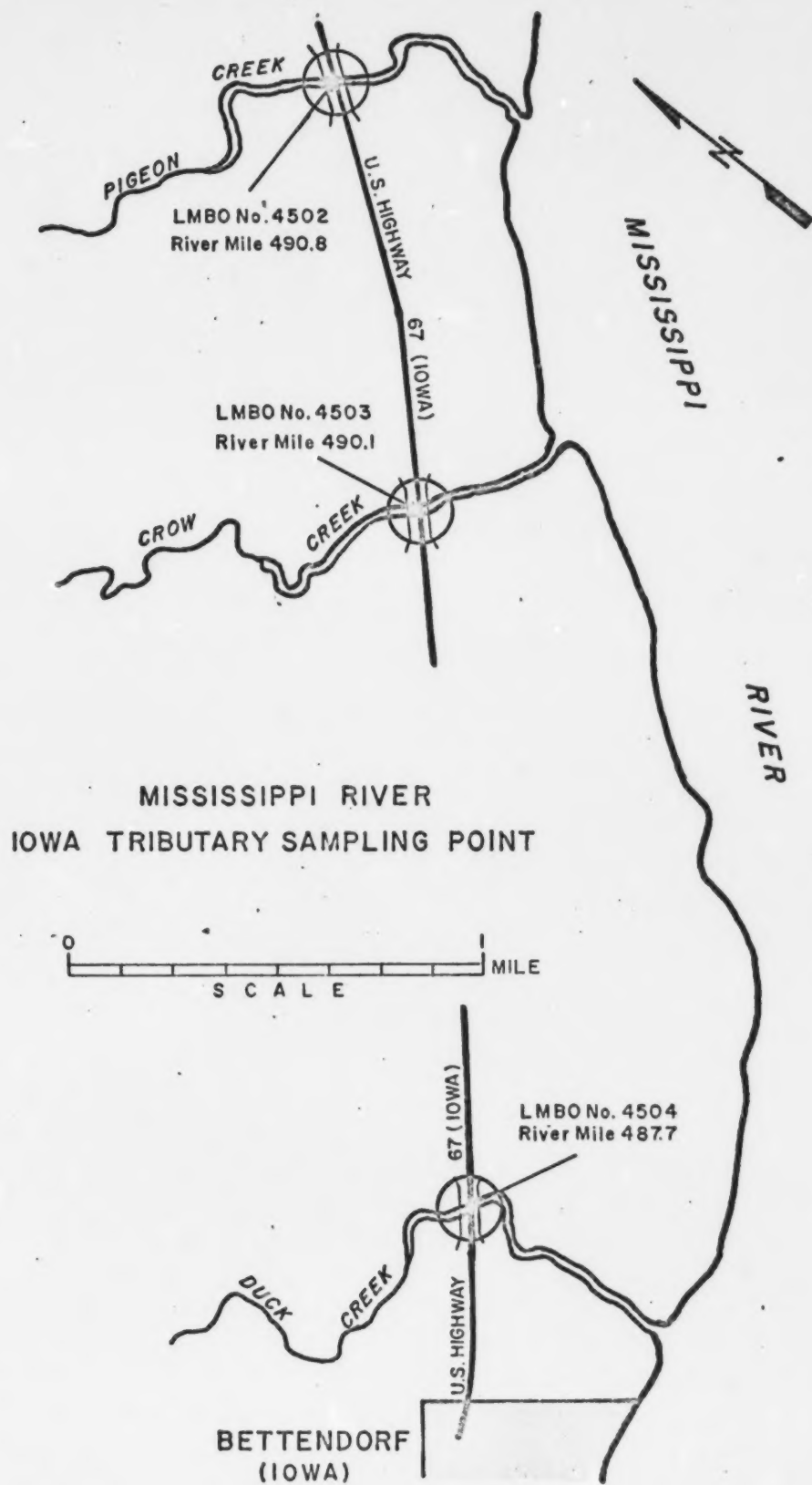
PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

Rapids 400' to 800' or more
above sampling point.





MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday

LMEO# 4505

DATE: July 24, 1969

PICTURE NOs. #8b upstream, #9b downstream

STREAM: Mad Creek

RIVER MILE: 455.7

LOCATION: In Muscatine, Iowa near U.S. 61 and Iowa 22. On Washington Street in Muscatine, Iowa.

TIME: 5:40 p.m. to 6:00 p.m.

WEATHER: Sunny, Clear

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

City and industrial area. Upstream -
"Western Hereford Exchange and Richard
Packing Plant." Downstream - Fish
observed 10" long and lively - species
unknown.

STREAM BOTTOM: Sandy - silt choked.

TURBIDITY: High. Visibility approx. 2" and carrying silt.

STREAM DEPTH: 6"

STREAM WIDTH: 60'

VELOCITY: 1.5 fps

CROSS SECTION: 50 

FLOW: 75.0 cfs

pH: 8.25

WATER TEMP.: 27° C.

AIR TEMP.: 30° C.

DO: 8.6

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.
(more observed from bridge)

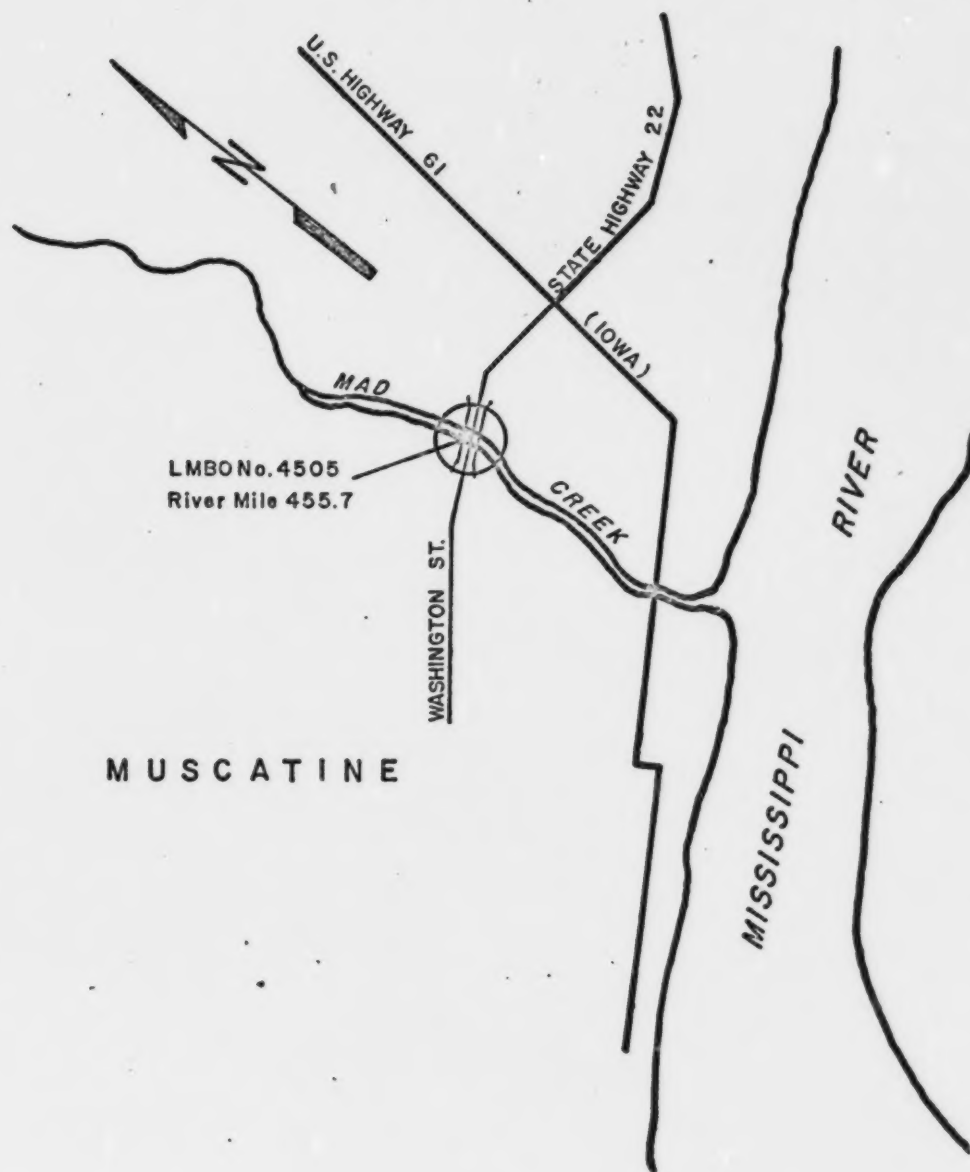
PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

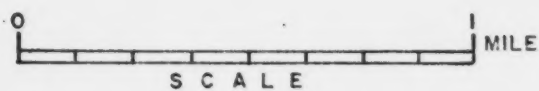
SKETCHES AND
OTHER FIELD
NOTES:

Sampling point was 50' downstream
from Washington Street. Creek
showed signs of recent flushing
from high water runoff.





MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



Third Sampling Day

Friday, July 25, 1969

			<u>River Mile</u>
(1b)	LMBO#	4506	433.0
(2b)	LMBO#	4507	404.1
(3b)	LMBO#	4508	395.8

3 Stations

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Friday LMBO# 4506

DATE: July 25, 1969 PICTURE NOS. #10, #11

STREAM: Iowa River RIVER MILE: 433.0

LOCATION: Iowa Highway 92, 15 miles west of U.S. 61 between Fredonia and
Columbus Jet., Iowa

TIME: 11:20 a.m.

WEATHER: Light Clouds, Bright & Sunny

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Heavy Silt Load, Lots of detergent
foam (Billowed).

STREAM BOTTOM: Clay

TURBIDITY: High

STREAM DEPTH: 18'

STREAM WIDTH: 1350'

VELOCITY: 1.2 fps

CROSS SECTION: 22,680 

FLOW: 27,250 cfs

pH: 8.1

WATER TEMP.: 25° C.

AIR TEMP.: 29° C.

DO: 6.0

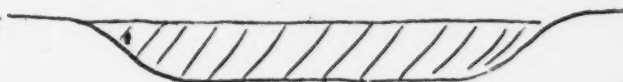
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Scoured Clean

PLANKTON: Sample Taken

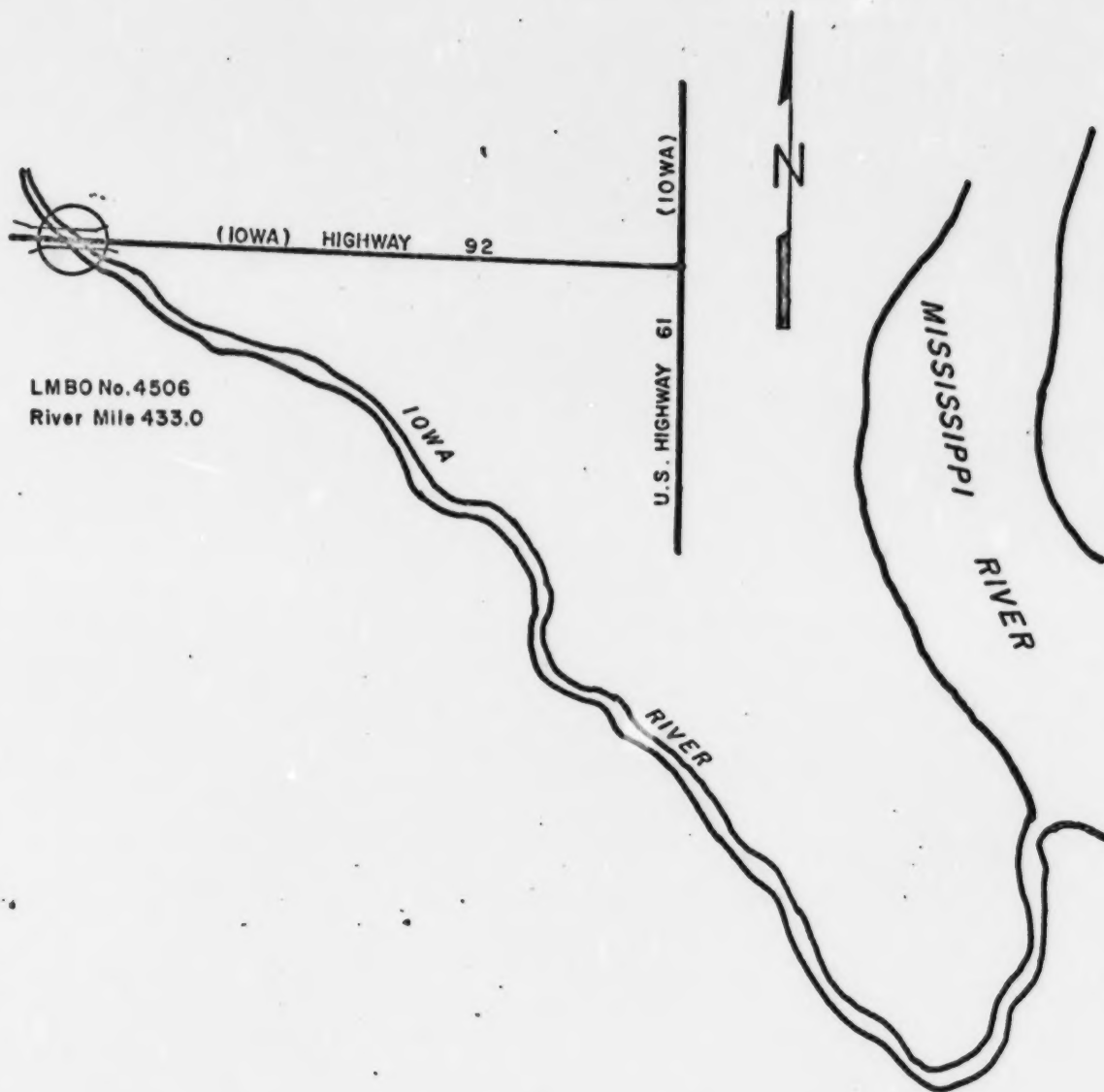
BOTTOM SAMPLE: Sample Taken

SKETCHES AND
OTHER FIELD
NOTES:



Note: Time lost!

Stake body truck was garaged for
several hours (11:30 AM to 2:30 PM) for
inspection and lubrication of steering and
suspension parts. Also, a rear view
mirror was replaced.



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Friday LMBO# 4507

DATE: July 25, 1969 PICTURE NOS. #12, #13, #14

STREAM: Flint River RIVER MILE: 404.1

LOCATION: Highway 61 south of Mediapolis, north of Burlington, Iowa.

TIME: 2:50 p.m. to 3:20 p.m.

WEATHER: Partial Cloudiness, Some Bright Sun.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Clay loam cover, crop land and
woods and some swamp.

STREAM BOTTOM: Gravelly Bottom, Silt deposits in bars in turns.

TURBIDITY: Fair $\frac{1}{2}$ of depth

STREAM DEPTH: 1' deep

STREAM WIDTH: 45'

SKETCHES AND
OTHER FIELD
NOTES:

VELOCITY: 2.3 fps

CROSS SECTION: 35 □ /

FLOW: 80 cfs

pH: 7.9

WATER TEMP.: 27.5° C.

AIR TEMP.: 32.0° C.

DO: 11.0

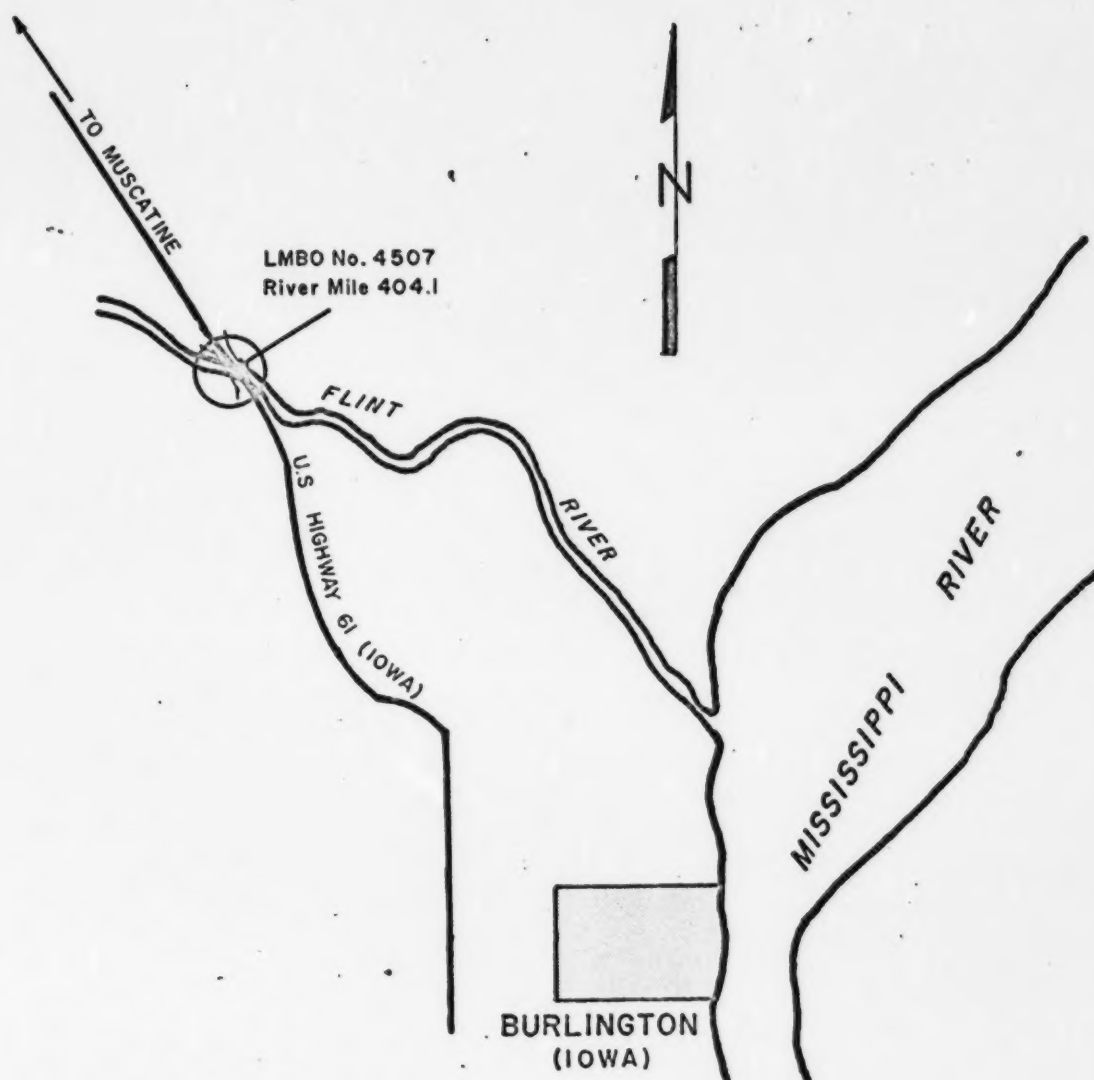
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Plentiful on rocks Sample taken

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

LMBO #3 (8-5-69)



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Friday LMBO# 4508

DATE: July 25, 1969 PICTURE NOS. #15, #16

STREAM: Skunk River RIVER MILE: 395.8

LOCATION: Nine miles south of Burlington, Iowa on U. S. Highway 61.

TIME: 4:15 p.m. to 4:45 p.m.

WEATHER: Lt. Cumulus Clouds, Bright Sun-Hot.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Large collections of logs and
trash at bridge piers. Lots of
foam on water. River smells very
bad, like skunk. Decaying organic
material.

STREAM BOTTOM: Clay, Silty.

TURBIDITY: Very Turbid, Muddy.

STREAM DEPTH: 9'

STREAM WIDTH: 260'

VELOCITY: 3.3 fps

CROSS SECTION: 1550 □ /

FLOW: 5150 cfs

pH: 7.6

WATER TEMP.: 25° C.

AIR TEMP.: 31° C.

DO: 7.8

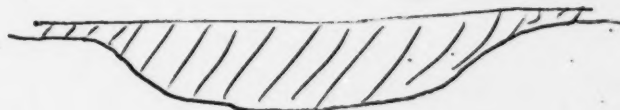
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.

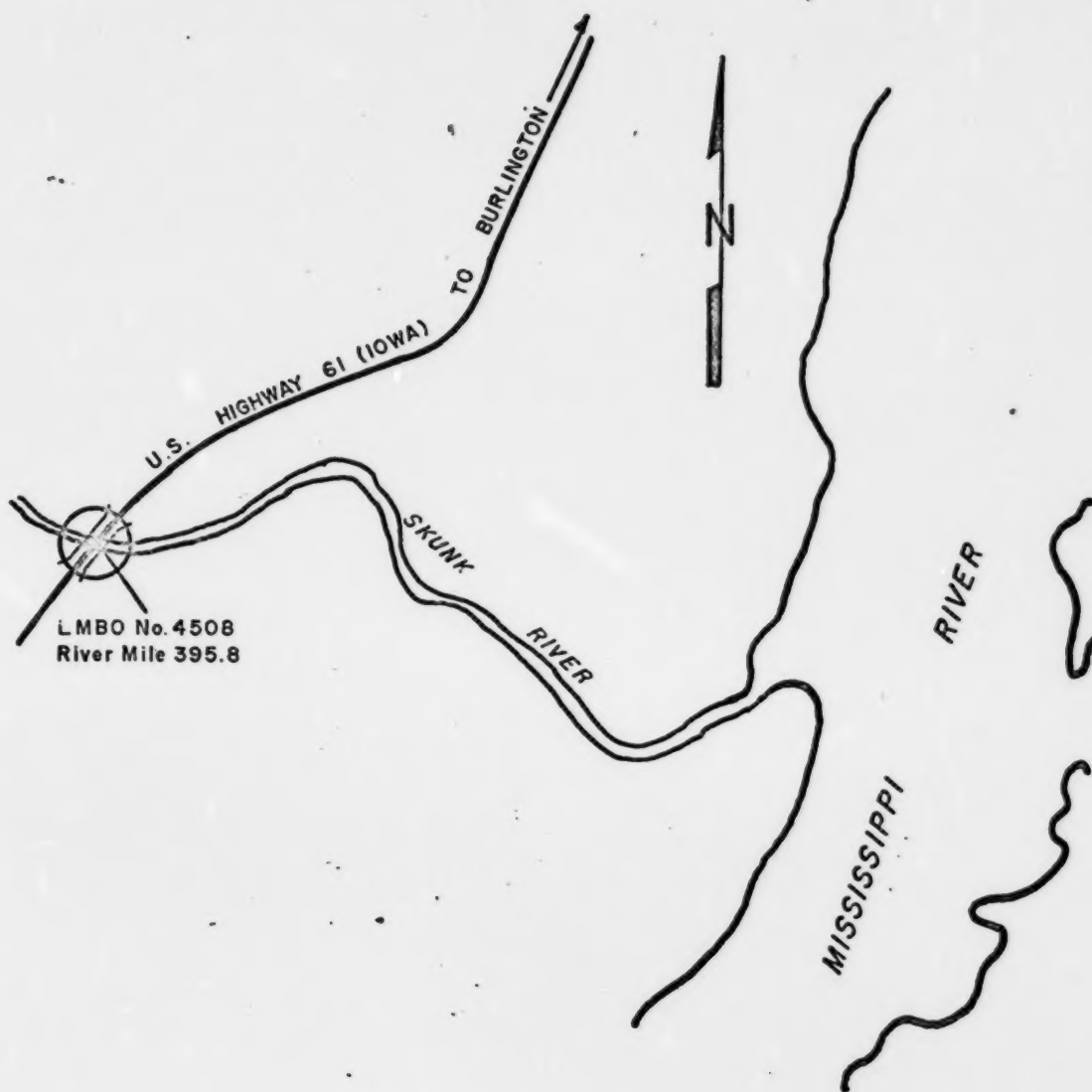
PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:



Bank-full and overland flow



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



Fourth Sampling Day

Monday, July 28, 1969

			<u>River Mile</u>
(1c)	LMBO#	4509	433.0
(2c)	LMBO#	4510	376.3
(3c)	LMBO#	4511	367.9
(4c)	LMBO#	4512	365.7

4 Stations

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Monday IMBO# 4509

DATE: July 28, 1969 PICTURE NOS. #17, #18

STREAM: Iowa River RIVER MILE: 433.0

LOCATION: At U.S. Highway 61, south of Muscatine, Iowa

TIME: 12:15 p.m.

WEATHER: Light Cumulus Clouds and
Bright Sun and Breeze

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Bankful on south bank and over-
flowing on the north bank
scoured clean.

STREAM BOTTOM: ?

TURBIDITY: High - Muddy, No Visibility reading.

STREAM DEPTH: 20'

STREAM WIDTH: 750'

SKETCHES AND
OTHER FIELD
NOTES:

VELOCITY: 4 fps

CROSS SECTION: 13,000 □ /

FLOW: 52,000 cfs

pH: 7.5

WATER TEMP.: 24° C.

AIR TEMP.: 27° C.

DO: 6.6

COD SAMPLE (H₂SO₄): Sample Taken.

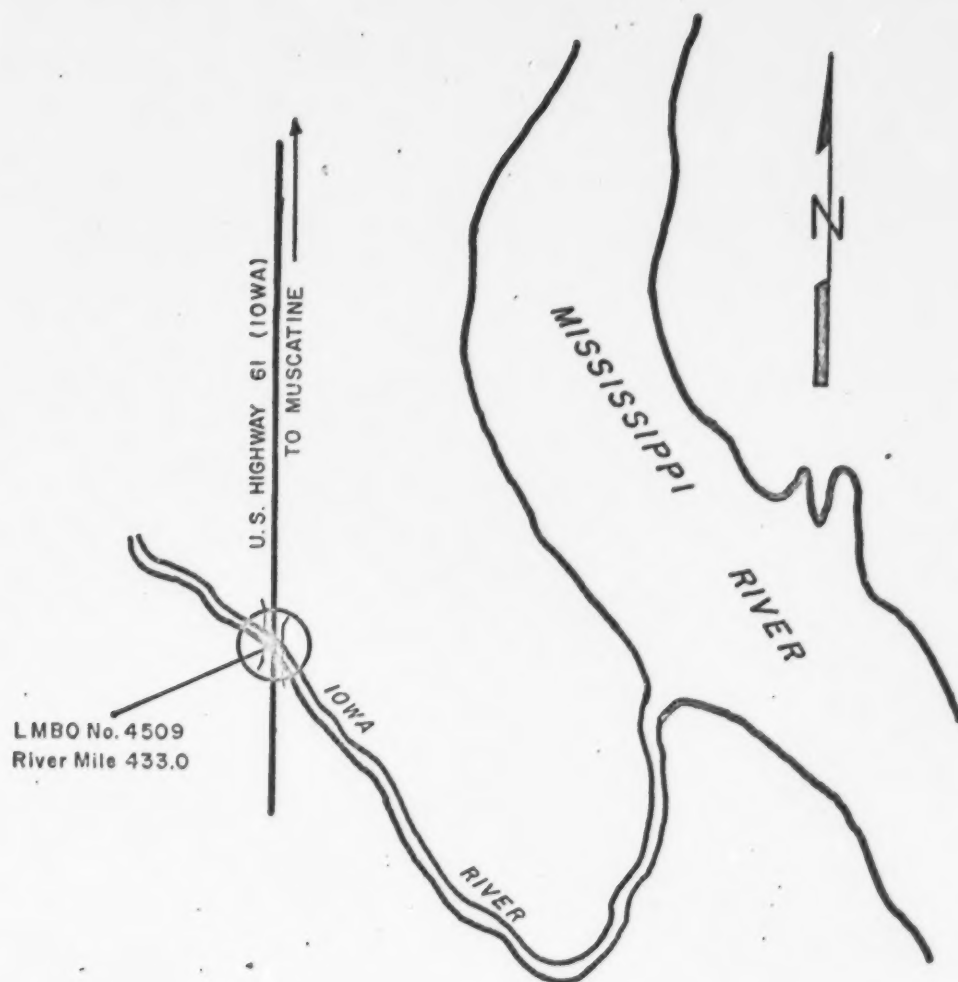
ALGAE: No Sample Taken.

PLANKTON: No Sample Taken.

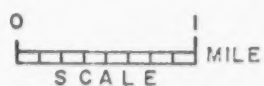
BOTTOM SAMPLE: No Sample Taken.

LMEO #3 (8-5-69)





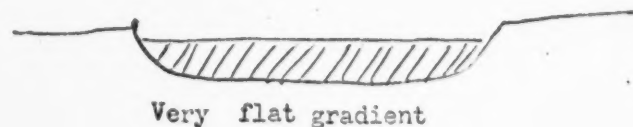
MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT

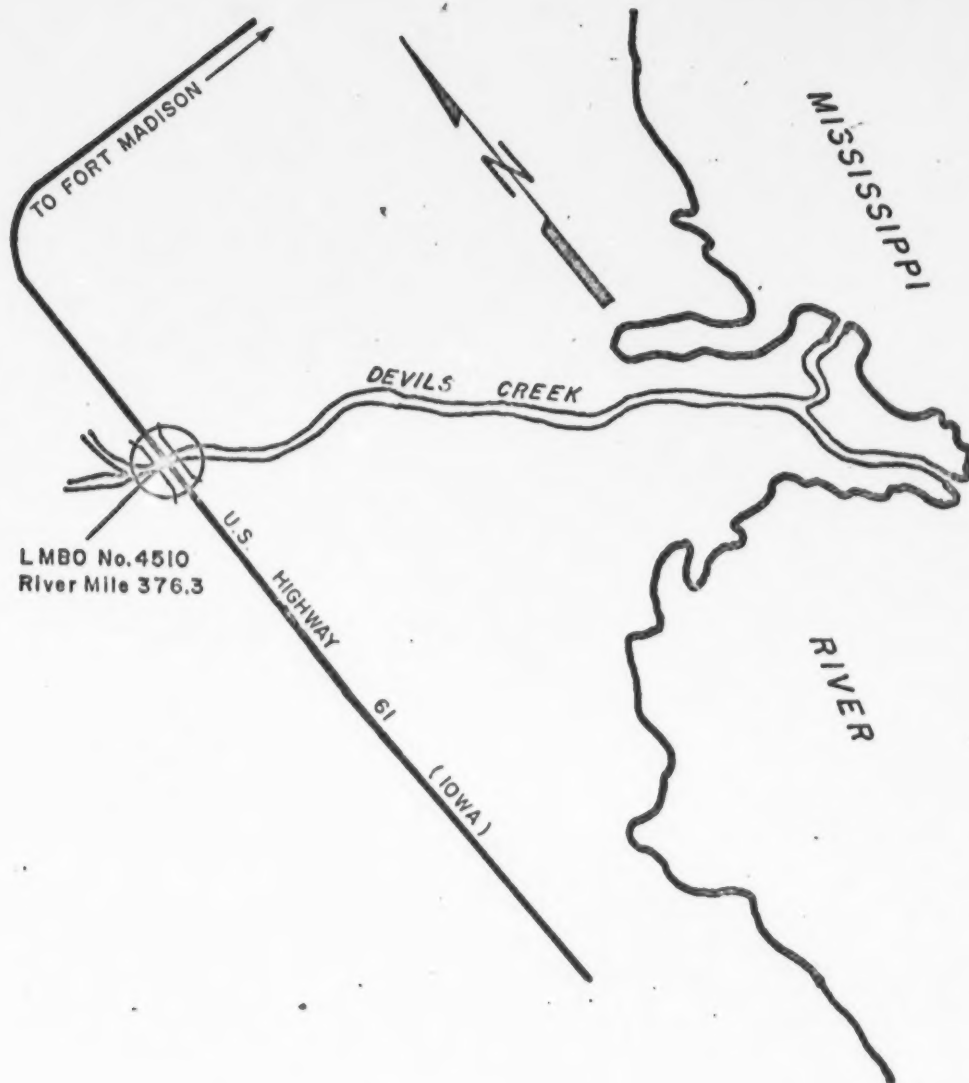


MISSISSIPPI TRIBUTARIES - FIELD DATA

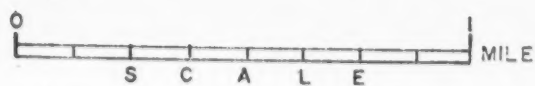
DAY: Monday LMBO# 4510
DATE: July 28, 1969 PICTURE NOS. #19, #20
STREAM: Devils Creek RIVER MILE: 376.3
LOCATION: U.S. Highway 61, south of Fort Madison. Iowa
TIME: 3:20 p.m.
WEATHER: Sunny, Hot, White
Cumulus Clouds.
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Clay, River Bottom Land, Pasture,
Dairy farms, dense small trees
and bushes. Water level 2' below
top of bank.
STREAM BOTTOM: Muddy
TURBIDITY: Turbid. Visibility 6 inches.
STREAM DEPTH: 6'
STREAM WIDTH: 98'
VELOCITY: 0.2 fps
CROSS SECTION: 580 □ /
FLOW: 116 cfs
pH: 7.8
WATER TEMP.: 23° C.
AIR TEMP.: 29° C.
DO: 6.2
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: Sample Taken.
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Monday LMBO# 4511

DATE: July 28, 1969 PICTURE NOS. #21, #22

STREAM: Lamalees Creek RIVER MILE: 367.9

LOCATION: On County Highway A, south of Montrose, Lee County, Iowa

TIME: 4:00 p.m.

WEATHER: Partially Cloudy, Hot, Breezy.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Rough, hilly and crop land.
Wind from the north.

STREAM BOTTOM: Sandy

TURBIDITY: Almost Clear (18")

STREAM DEPTH: 18"

STREAM WIDTH: 62'

SKETCHES AND
OTHER FIELD
NOTES:

VELOCITY: (Practically no flow) fps

CROSS SECTION: 260 □ /

FLOW: Could be back-up water
from mouth. cfs

pH: 7.7

WATER TEMP.: 24° C.

AIR TEMP.: 29° C.

DO: 7.3

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Heavy growth of rooted water
plants on sides of bottom.
Some Algae.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

At 4:20 p.m., about a half mile
upstream, mayflies, caddis flies,
and many minnows were observed.
Rocky and sandy bottom at this
point.

LMBO #3 (8-5-69)

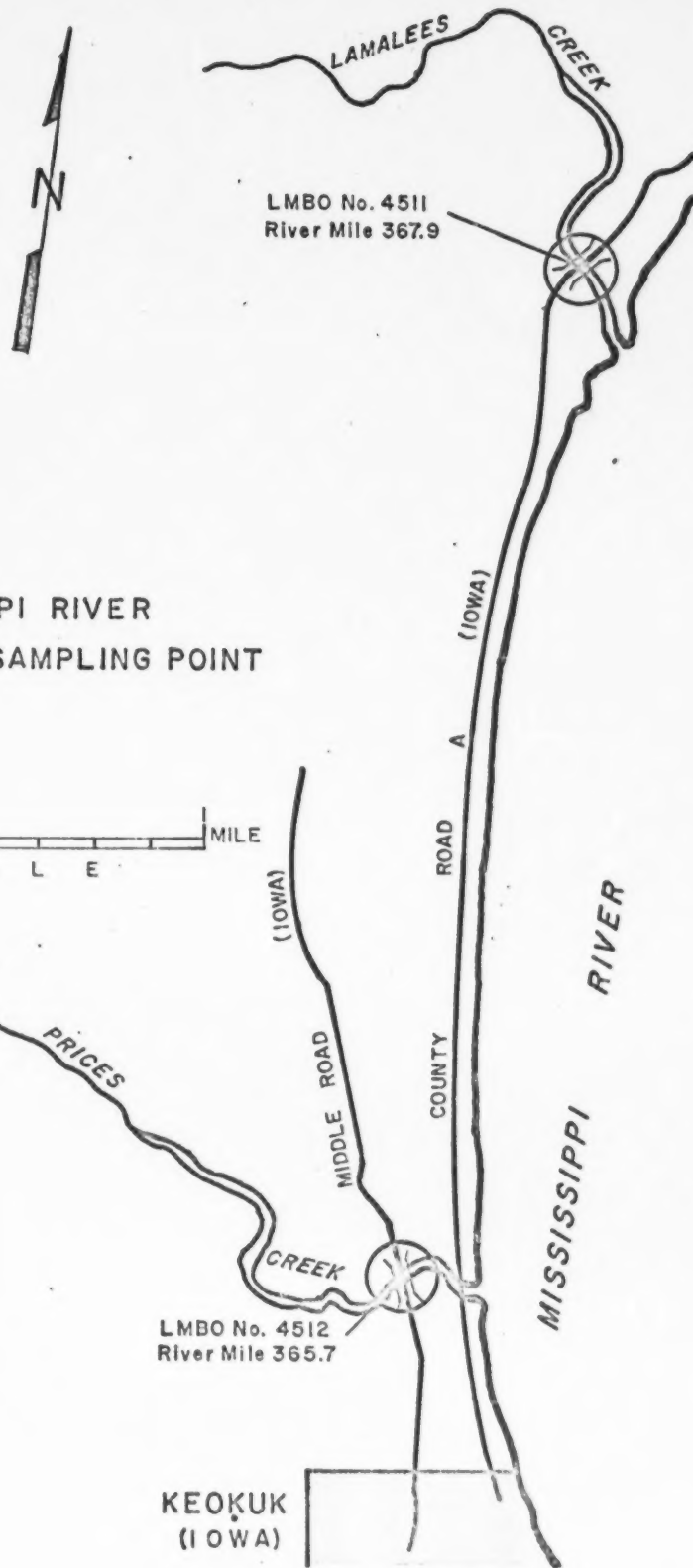
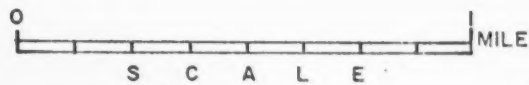
MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Monday IMBO# 4512
DATE: July 28, 1969 PICTURE NOS. #23, #24, #25
STREAM: Prices Creek RIVER MILE: 365.7
LOCATION: Lee County, Middle Road, north edge of Keokuk, Iowa.
TIME: 4:50 p.m.
WEATHER: Partly cloudy, white cumulus,
patches of blue sky
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Golf course on south side.
Town nearby, Woods and undergrowth
near stream. Grassy in open areas.
Water intake above bridge 8" line
for golf course irrigation.
STREAM BOTTOM: Sandy
TURBIDITY: 1 1/2" (50%)
STREAM DEPTH: 3'
STREAM WIDTH: 55'
VELOCITY: North (Variable) wind
0.1 (?) fps
CROSS SECTION: 300 □ /
FLOW: 30 (?) cfs
pH: 8.1
WATER TEMP.: 26° C.
AIR TEMP.: 26° C.
DO: 12.4
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: Sample Taken.
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



Fifth Sampling Day
Tuesday, July 29, 1969

			<u>River Mile</u>
(1d)	LMBO#	4513	478.9
(2d)	LMBO#	4514	447.4
(3d)	LMBO#	4515	432.9
(4d)	LMBO#	4516	431.2
(5d)	LMBO#	4517	427.8
(6d)	LMBO#	4518	409.8
(7d)	LMBO#	4519	394.7
(8d)	LMBO#	4520	394.7
(9d)	LMBO#	4521	394.0
(10d)	LMBO#	4522	391.5
(11d)	LMBO#	4523	388.3

11 Stations

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday LMBO# 4513

DATE: July 29, 1969 PICTURE NOS. #26b, #27b, #28b

STREAM: Rock River (Illinois) RIVER MILE: 478.9

LOCATION: Illinois State Highway 199, bridge over Rock River, at Rock Island,
Illinois

TIME: 8:45 a.m.

WEATHER: Bright, sunny, warm

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

River Bottom, Heavy Silt, and
Sand Bars.

STREAM BOTTOM: Clay

TURBIDITY: 2" (Muddy) (Heavy Silt Load)

STREAM DEPTH: 9'

STREAM WIDTH: 850'

SKETCHES AND
OTHER FIELD
NOTES:

VELOCITY: 1.7 fps

CROSS SECTION: 7600 □ /

FLOW: 12,900 cfs

pH: 8.0

WATER TEMP.: 22° C.

AIR TEMP.: 23° C.

DO: 7.1

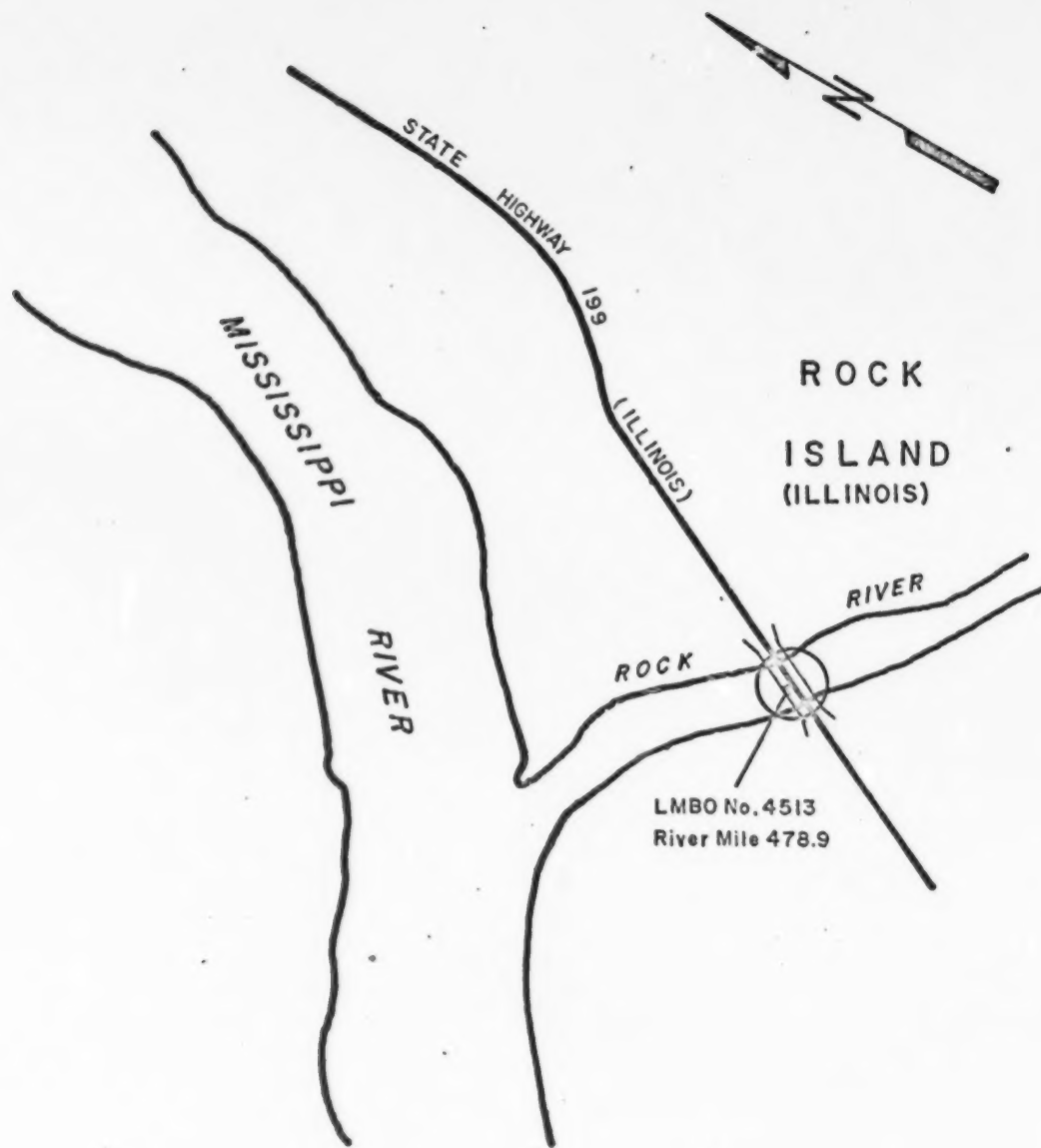
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.

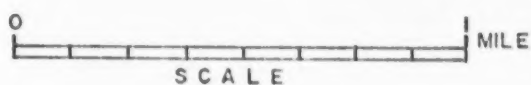
PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

LMBO #3 (8-5-69)



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday IMBO# 4514

DATE: July 29, 1969 PICTURE NOS. #29b, #30b, #31b

STREAM: Copperas Creek RIVER MILE: 447.4

LOCATION: County A, South of Illinois 92, Southeast of Muscatine, Iowa

TIME: 10:05 a.m.

WEATHER: Bright, Sunny

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Low hills on east side of road.
Pasture hilly. River Bottom on
west side of road. Lots of shoaling.
Lots of horses and cattle. Levees on
each side of stream to the outlet. Corn
fields on each side.

STREAM BOTTOM: Silt

TURBIDITY: High, Heavy silt load.

STREAM DEPTH: 1' 6" (18")

STREAM WIDTH: 60'

VELOCITY: 1.0 fps

CROSS SECTION: 75 

FLOW: 75 cfs

pH: 7.8

WATER TEMP.: 19° C.

AIR TEMP.: 25° C.

DO: 7.6

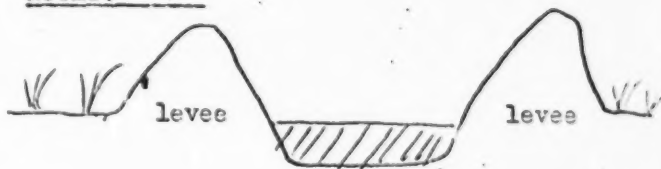
COD SAMPLE (H₂SO₄): Sample Taken.

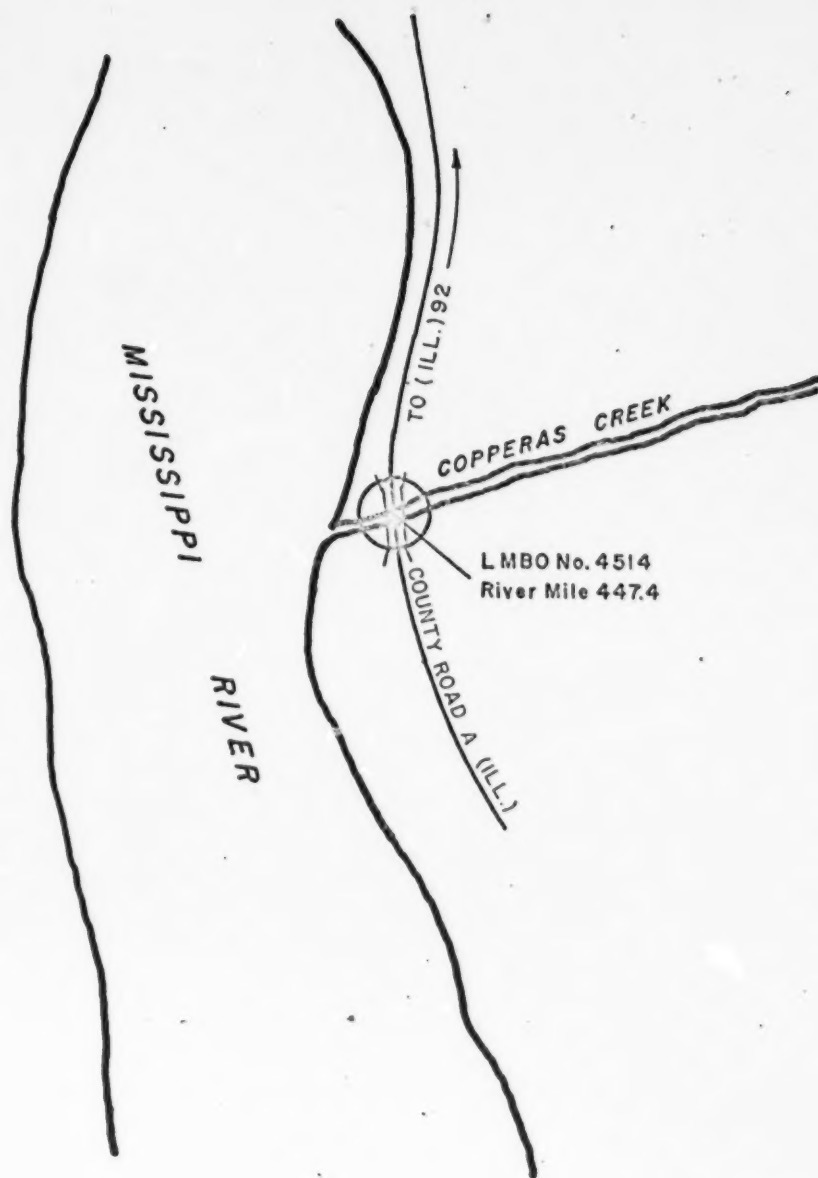
ALGAE: Sample Taken.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday

LMBO# 4515

DATE: July 29, 1969

PICTURE NOs. #32b, #33b looking downstream

STREAM: Boston Bay Drainage Channel

RIVER MILE: 432.9

LOCATION: North of New Boston, Illinois, on County A, near County 14.

TIME: 10:30 a.m.

WEATHER: Clear and Sunny

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Sandy hills and woods on one side,
Bottom land in corn on other side.

STREAM BOTTOM: Sandy Silt

TURBIDITY: Visibility 6"

STREAM DEPTH: 18"

STREAM WIDTH: 40'

VELOCITY: 3 fps

CROSS SECTION: 40 □ /

FLOW: 120 cfs

pH: 8.0

WATER TEMP.: 19° C.

AIR TEMP.: 25° C.

DO: 8.2

COD SAMPLE (H₂SO₄): Sample Taken.

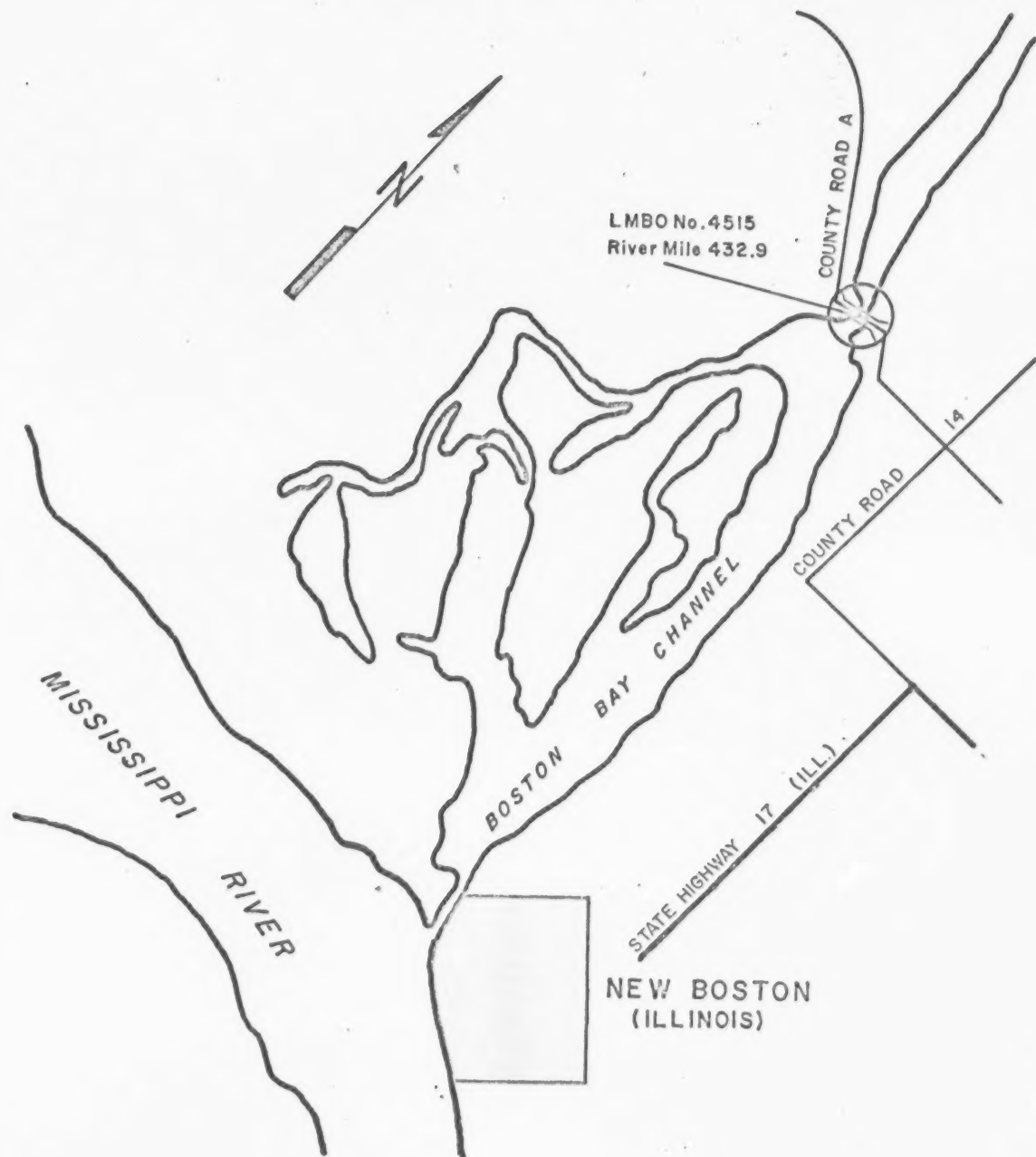
ALGAE: Sample Taken.

PLANKTON: Sample Taken.

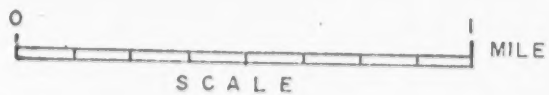
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday

LMBO# 4516

DATE: July 29, 1969

PICTURE NOS. #34b and 36b (#35b showing
fish taken from this river)

STREAM: Edwards River

RIVER MILE: 431.2

LOCATION: Clay St. extended eastward out of New Boston, Illinois.

TIME: 11:20 a.m.

WEATHER: Bright, Sunny, Warm

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Farm Bottom land, Woods, Swamp,
and Pasture.

STREAM BOTTOM: Sand Clay

TURBIDITY: High

STREAM DEPTH: 7' (Bank Full)

STREAM WIDTH: 80'

VELOCITY: 3.5 fps

CROSS SECTION: 400 

FLOW: 1,400.0 cfs

pH: 7.4

WATER TEMP.: 21° C.

AIR TEMP.: 28° C.

DO: 6.4

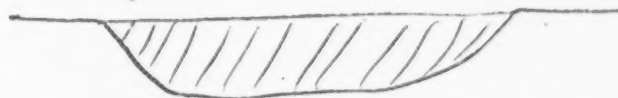
COD SAMPLE (H₂SO₄): Sample Taken.

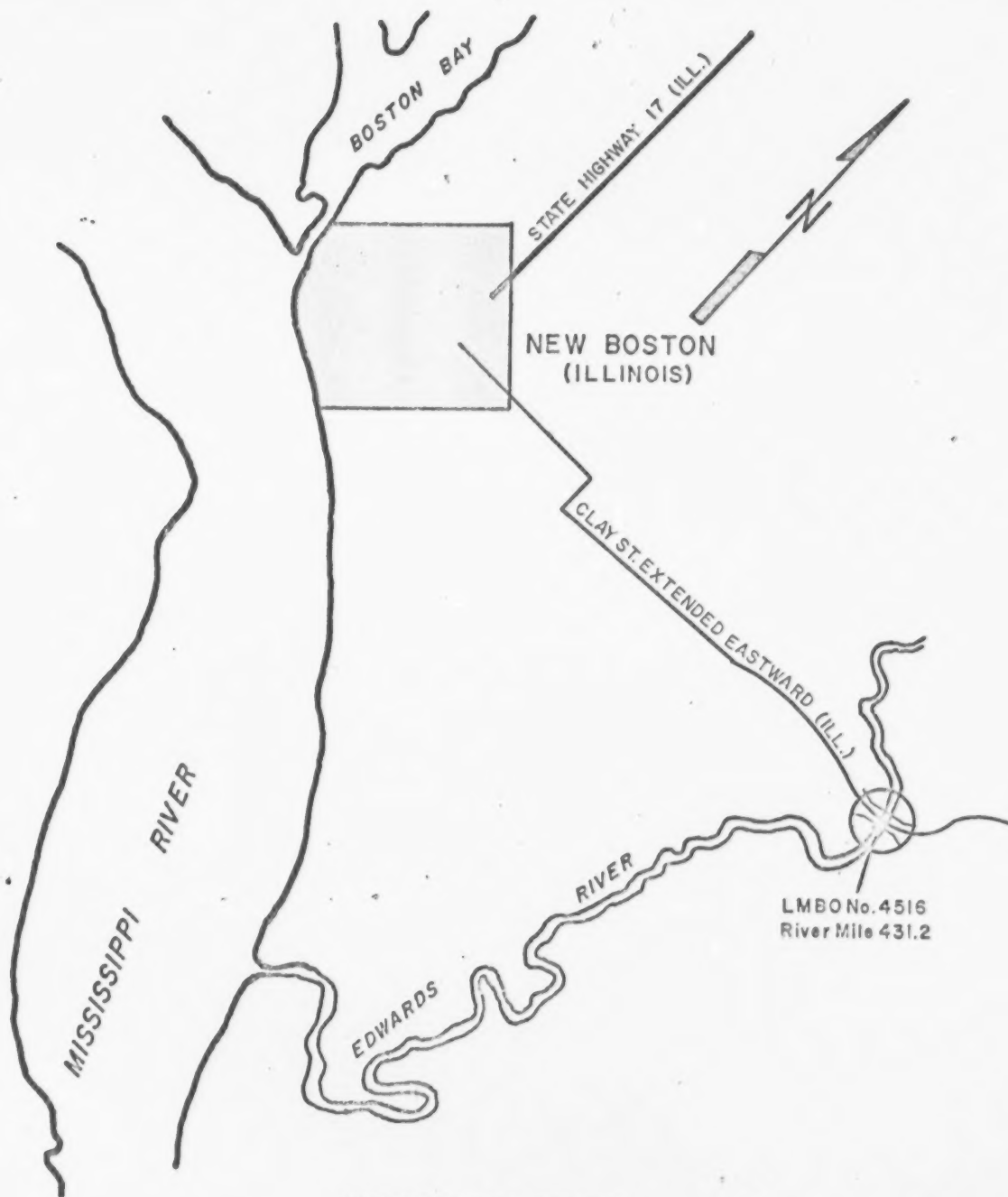
ALGAE: Sample Taken.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday LMBO# 4517

DATE: July 29, 1969 PICTURE NOS. #1c, #2c

STREAM: Pope Creek RIVER MILE: 127.8

LOCATION: Northeast of Keithsburg, Illinois (16th Street Extended).

TIME: 11:45 a.m.

WEATHER: Sunny, Breezy, Clear

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Dense vegetation (trees and bushes)
near stream. Farm land on one side.
Small town 1/8 mile on other side.

STREAM BOTTOM: Sandy Loam

TURBIDITY: Heavy Silt Load (Visibility 3")

STREAM DEPTH: 7'

STREAM WIDTH: 65'

VELOCITY: 0.65 fps

CROSS SECTION: 280 

FLOW: 180 cfs

pH: 7.7

WATER TEMP.: 20° C.

AIR TEMP.: 27° C.

DO: 7.6

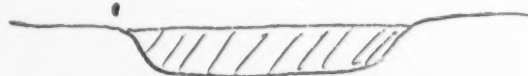
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.

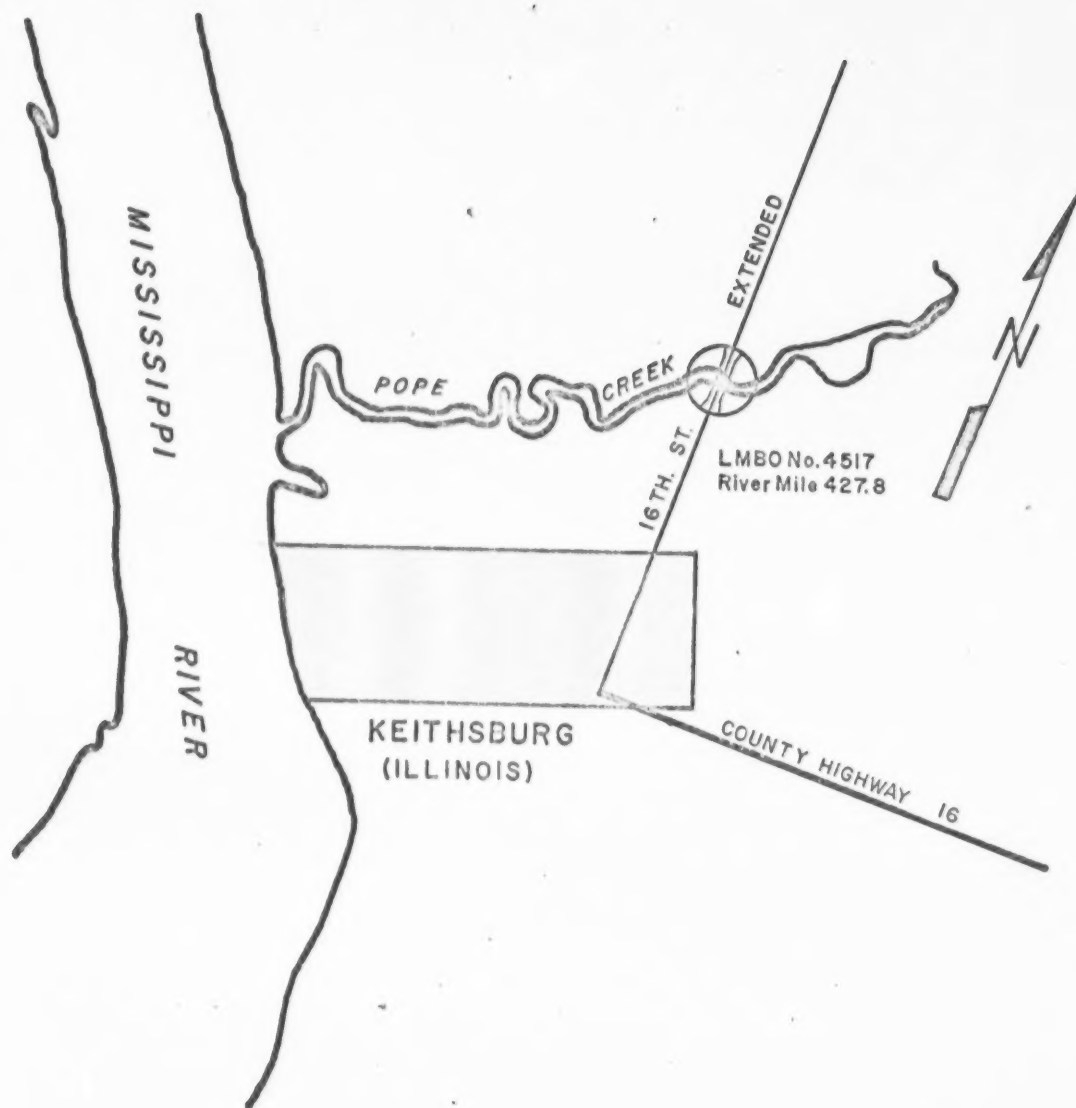
PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

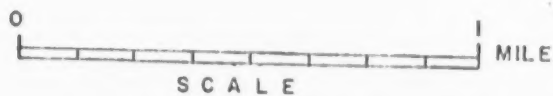
SKETCHES AND
OTHER FIELD
NOTES:



LMBO #3 (8-5-69)



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday LMBO# 4518

DATE: July 29, 1969 PICTURE NOS. #3c, #4c, #5c

STREAM: Henderson River Diversion Ditch RIVER MILE: 409.8

LOCATION: Bridge on Highway 164, south of Oquawka, Illinois

TIME: 12:45 p.m.

WEATHER: Clear and Sunny

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Farming, bottom land, trees and
bushes, park above bridge.

STREAM BOTTOM: Loam

TURBIDITY: 6" Visibility, Heavy Silt Load

STREAM DEPTH: 6'

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: 95'

VELOCITY: 1.8 fps

CROSS SECTION: 410 

FLOW: 730 cfs

pH: 7.8

WATER TEMP.: 22° C.

AIR TEMP.: 27° C.

DO: 8.2

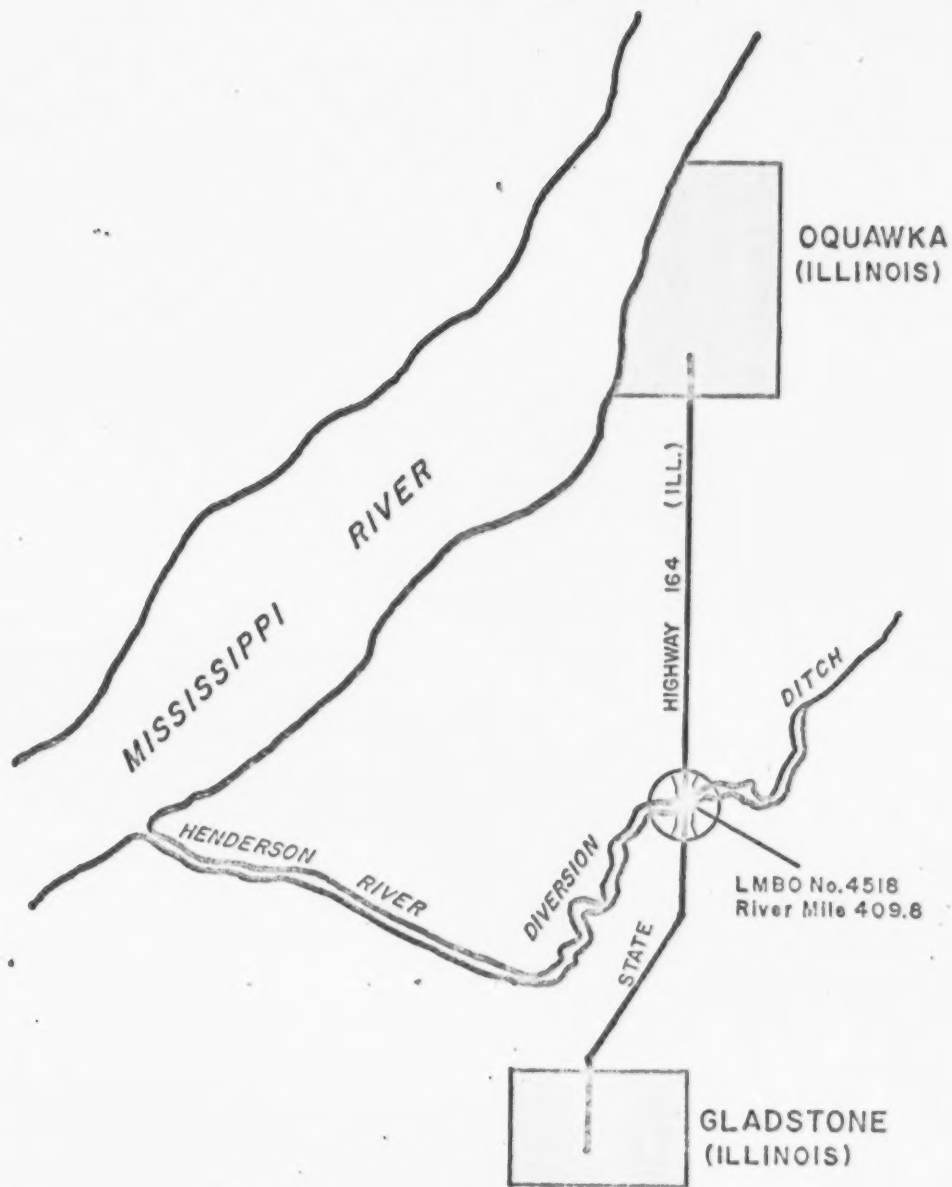
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Scoured clean

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

LMBO #3 (8-5-69)

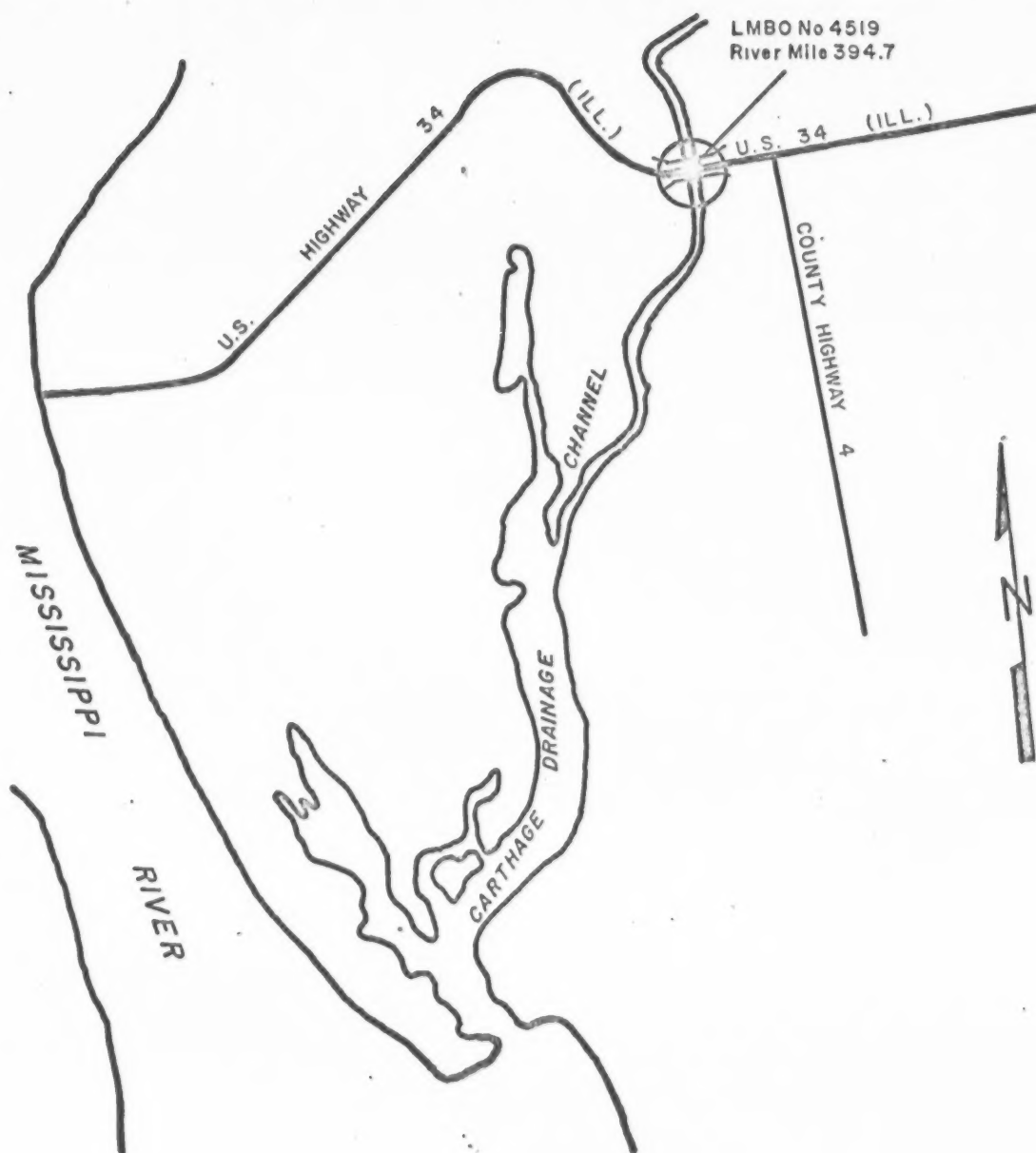


MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday IMBO# 4519
DATE: July 29, 1969 PICTURE NOS. #6c, #7c
STREAM: Carthage Drainage Channel RIVER MILE: 394.7
LOCATION: Route U.S. 34, $\frac{1}{2}$ mile west of County Highway 4 in Henderson
County Illinois (East of Burlington, Iowa).
TIME: 1:15 p.m.
WEATHER: Clear and Sunny
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Grassy River Bottom Land - Some
trees and bushes - Some corn
fields. Wide flood plain. Very
sandy near shores.
STREAM BOTTOM: Muck Bottom, Grey
TURBIDITY: 6" Visibility (Turbid)
STREAM DEPTH: 20" SKETCHES AND
OTHER FIELD
NOTES:
STREAM WIDTH: 30'
VELOCITY: 1.5 fps
CROSS SECTION: 51 □ /
FLOW: 76 cfs
pH: 7.2
WATER TEMP.: 22° C.
AIR TEMP.: 29° C.
DO: 6.8
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: Lots of Algae Growth
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday IMBO# 4520
DATE: July 29, 1969 PICTURE NOS. #3c, #9c
STREAM: Ellison Creek RIVER MILE: 394.7
LOCATION: About 3/4 mile from Mississippi; Bridge on County Road #4 (Illinois);
East of Burlington, Iowa, and south of
TIME: 1:30 p.m. U.S. 34 in Henderson County.
WEATHER: Bright, Sunny, Hot and Windy.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Lithopone from paint floating on
water. Bridge was being painted
by hand brushes with aluminum paint.

STREAM BOTTOM: Muck over sand. Rock riprap sides downstream and sodded
sides upstream.

TURBIDITY: Very Turbid

STREAM DEPTH: 2'

STREAM WIDTH: 120'

VELOCITY: 0.2 fps

CROSS SECTION: 210 □ /

FLOW: 42 cfs

pH: 8.3

WATER TEMP.: 26° C.

AIR TEMP.: 28° C.

DO: 7.3

COD SAMPLE (H₂SO₄): Sample Taken.

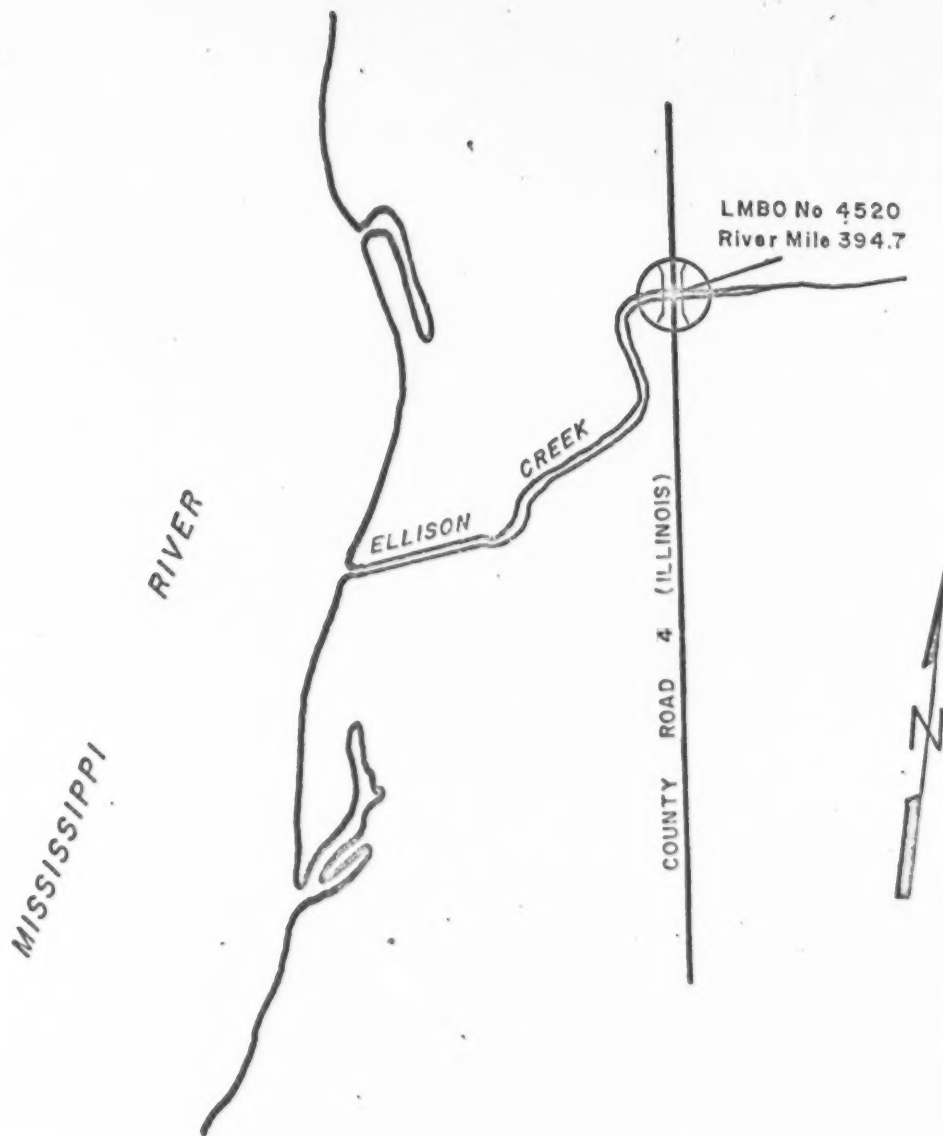
ALGAE: Sample Taken.

PLANKTON: Sample Taken.

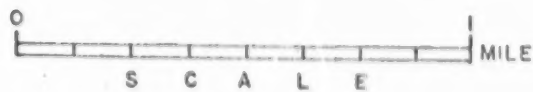
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday IMBO# 4521

DATE: July 29, 1969 PICTURE NOS. #10c, #11c

STREAM: Honey Creek RIVER MILE: 394.0

LOCATION: County Road 4 Bridge, between Carman and Lomax, Illinois.

TIME: 2:00 p.m.

WEATHER: Clear-Sunny-Hot

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Honey Creek drains into Shokokon Slough, east of Mississippi River mile 398.0. This Slough drains into the Mississippi River at approximately 394.0.
All river bottom farm crop land - Corn. Minnows. Willows and other small trees along waterway.

STREAM BOTTOM: Sandy

TURBIDITY: Clear to 1' depth

STREAM DEPTH: 8" Average

STREAM WIDTH: 30'

VELOCITY: 2 fps

CROSS SECTION: 12 □ /

FLOW: 24 cfs

pH: 8.2

WATER TEMP.: 26° C.

AIR TEMP.: 31° C.

DO: 10.2

COD SAMPLE (H₂SO₄): Sample Taken.

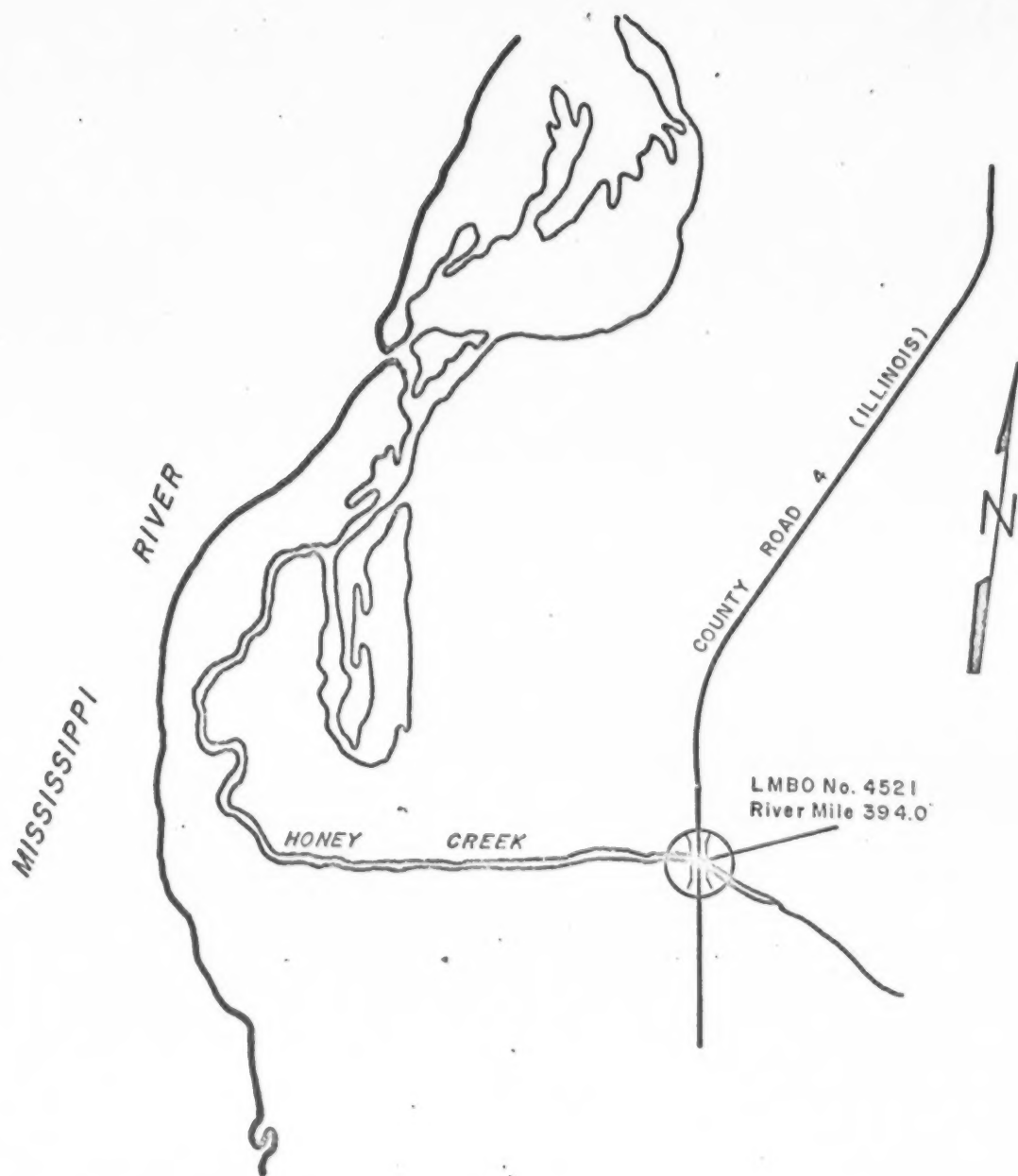
ALGAE: Evidence of Algae and Aquatic Growth.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday LMBO# 4522

DATE: July 29, 1969 PICTURE NOS. #12c, #13c

STREAM: Camp Creek RIVER MILE: 391.5

LOCATION: Illinois State Highway 96, 1 mile northeast of Dallas City, Ill.

TIME: 2:30 p.m.

WEATHER: Clear and Sunny - Hot

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Stone Quarry near bridge
Farm land and woods, corn mostly.

STREAM BOTTOM: Sandy loam, some ledge rock outcropping.

TURBIDITY: 6" Visibility (Turbid)

STREAM DEPTH: 5'

STREAM WIDTH: 65'

VELOCITY: .1 (?) fps

CROSS SECTION: 250 □ /

FLOW: 1½ cfs

pH: 8.1

WATER TEMP.: 26° C.

AIR TEMP.: 30° C.

DO: 7.1

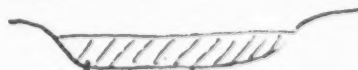
COD SAMPLE (H₂SO₄): Sample Taken.

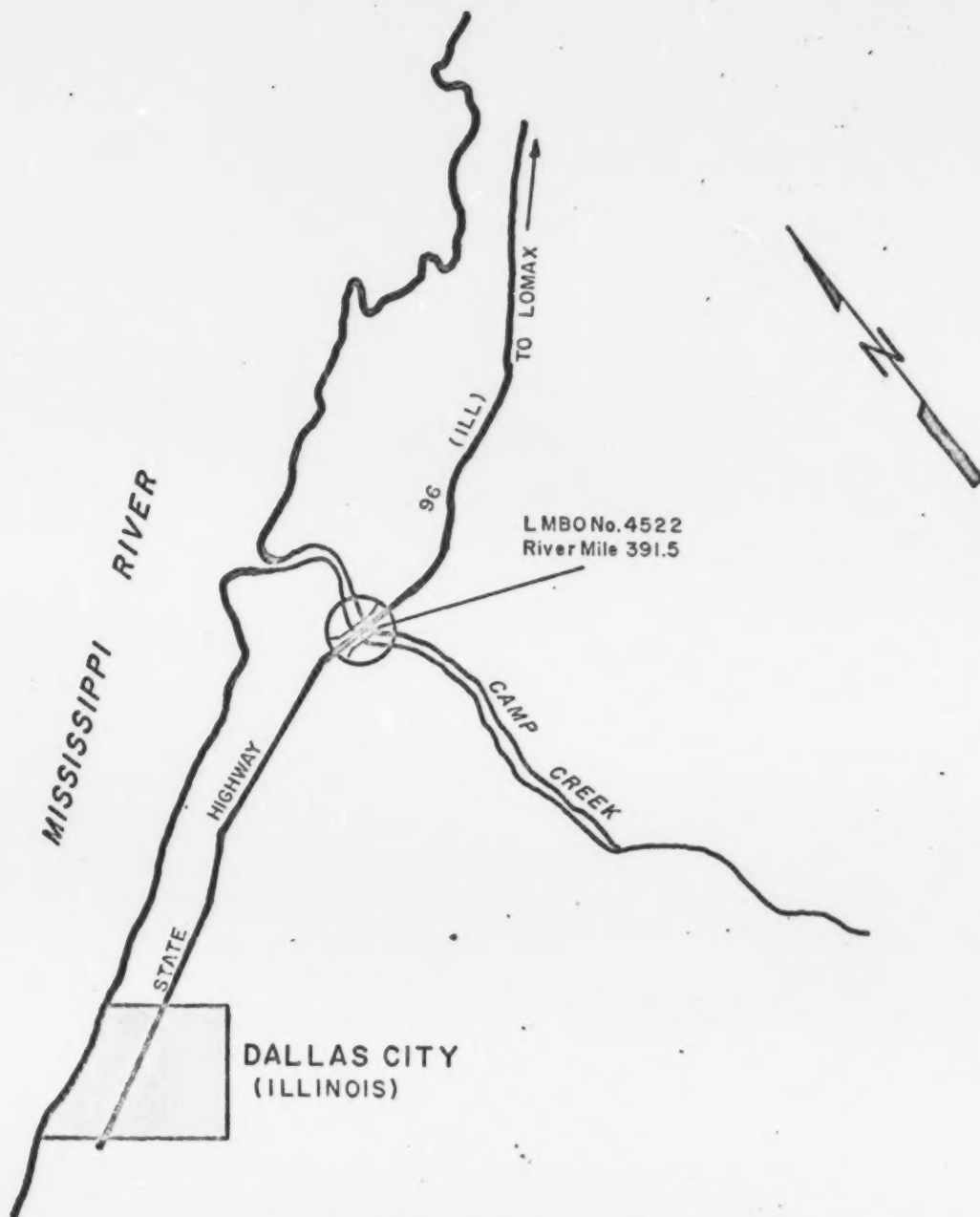
ALGAE: Bottom scoured clean.

PLANKTON: Sample Taken.

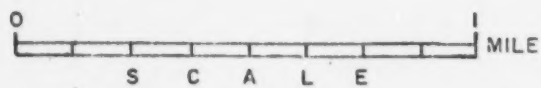
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Tuesday IMBO# 4523

DATE: July 29, 1969 PICTURE NOS. #14c, #15c

STREAM: Spillman Creek RIVER MILE: 388.3

LOCATION: West edge of Pontoosuc, Illinois. Bridge on local street.
North of Illinois highways 96 and 9.

TIME: 3:00 p.m.

WEATHER: Sunny - Clear

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Dense undergrowth and trees on
both sides of stream. Evidence
of recent high flows - debris, etc.

STREAM BOTTOM: Mud

TURBIDITY: Visibility 1' No silt load, many sand bars, some algae,
some fish.

STREAM DEPTH: 4'

STREAM WIDTH: 63'

VELOCITY: 1/8 fps

CROSS SECTION: 136 □ /

FLOW: 17 cfs

pH: 7.4

WATER TEMP.: 27° C.

AIR TEMP.: 29° C.

DO: 5.7

COD SAMPLE (H₂SO₄): Sample Taken.

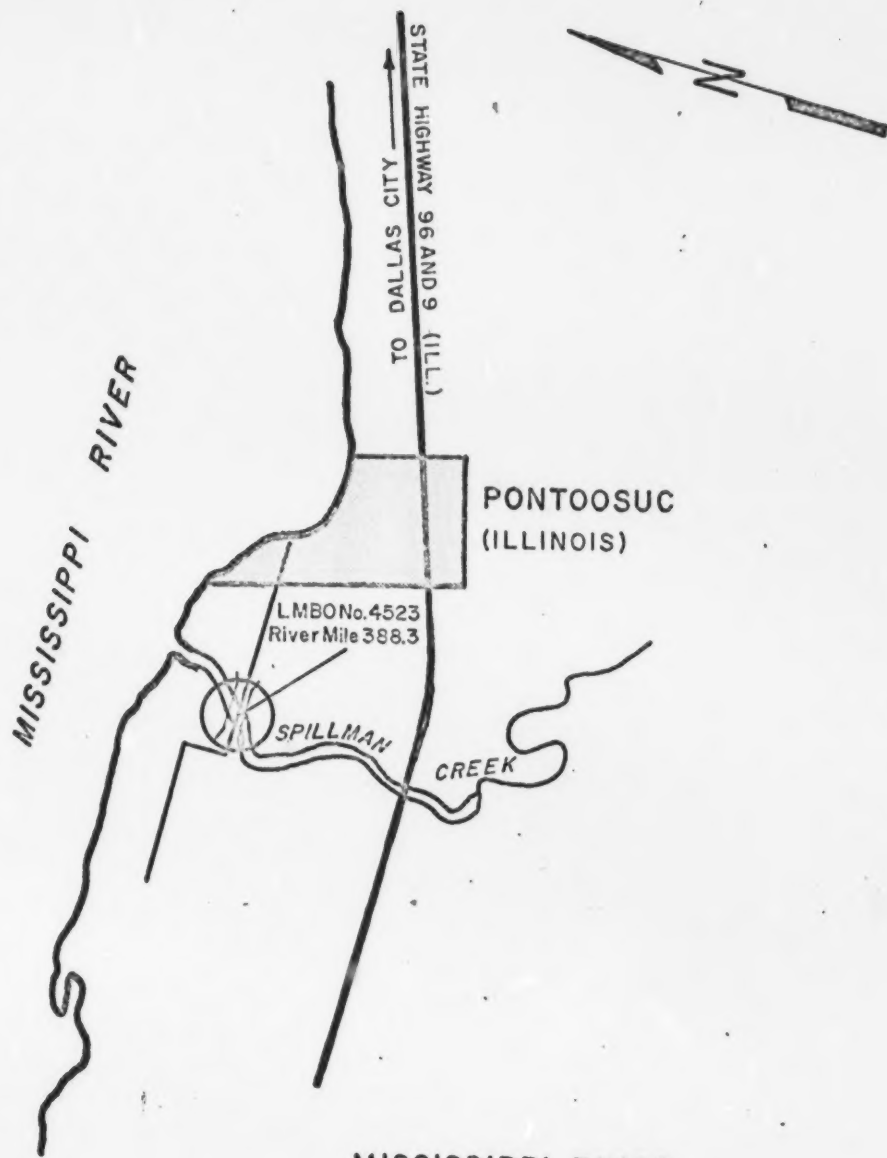
ALGAE: Some

PLANKTON: Sample Taken.

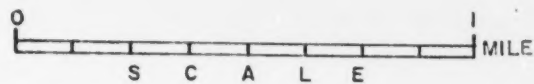
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

Backwater effect here. Stagnation
due to backwater.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



Sixth Sampling Day

Wednesday, July 30, 1969

			<u>River Mile</u>
(1e)	LMBO#	4524	361.2
(2e)	LMBO#	4525	364.7
(3e)	*(No Number) Incomplete Data on Larry Creek - too shallow to take samples and readings		369.1
(4e)	LMBO#	4526	382.5

4 Stations checked
3 Stations recorded

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4524

DATE: July 30, 1969 PICTURE NOS. #16c, #17c, #18c

STREAM: Des Moines River RIVER MILE: 361.2

LOCATION: Bridge from Iowa to Missouri for U.S. Highways 61 and 136,
southwest of Keokuk, Iowa.

TIME: 9:10 a.m.

WEATHER: Clear, Bright, Sunny

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Detergent foam all over and constantly
flowing - dirty. Farm land. Hills,
woods, pastures. This river bottom
scoured clean by heavy flow.

STREAM BOTTOM: Clay

TURBIDITY: Visibility not measureable. Very turbid and silt laden.

STREAM DEPTH: 16'

STREAM WIDTH: 690'

VELOCITY: 4.2 fps

CROSS SECTION: 7850 sq ft

FLOW: 33,000 cfs

pH: 7.7

WATER TEMP.: 25°C.

AIR TEMP.: 28°C.

DO: 6.7

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.

PLANKTON: Sample Taken.

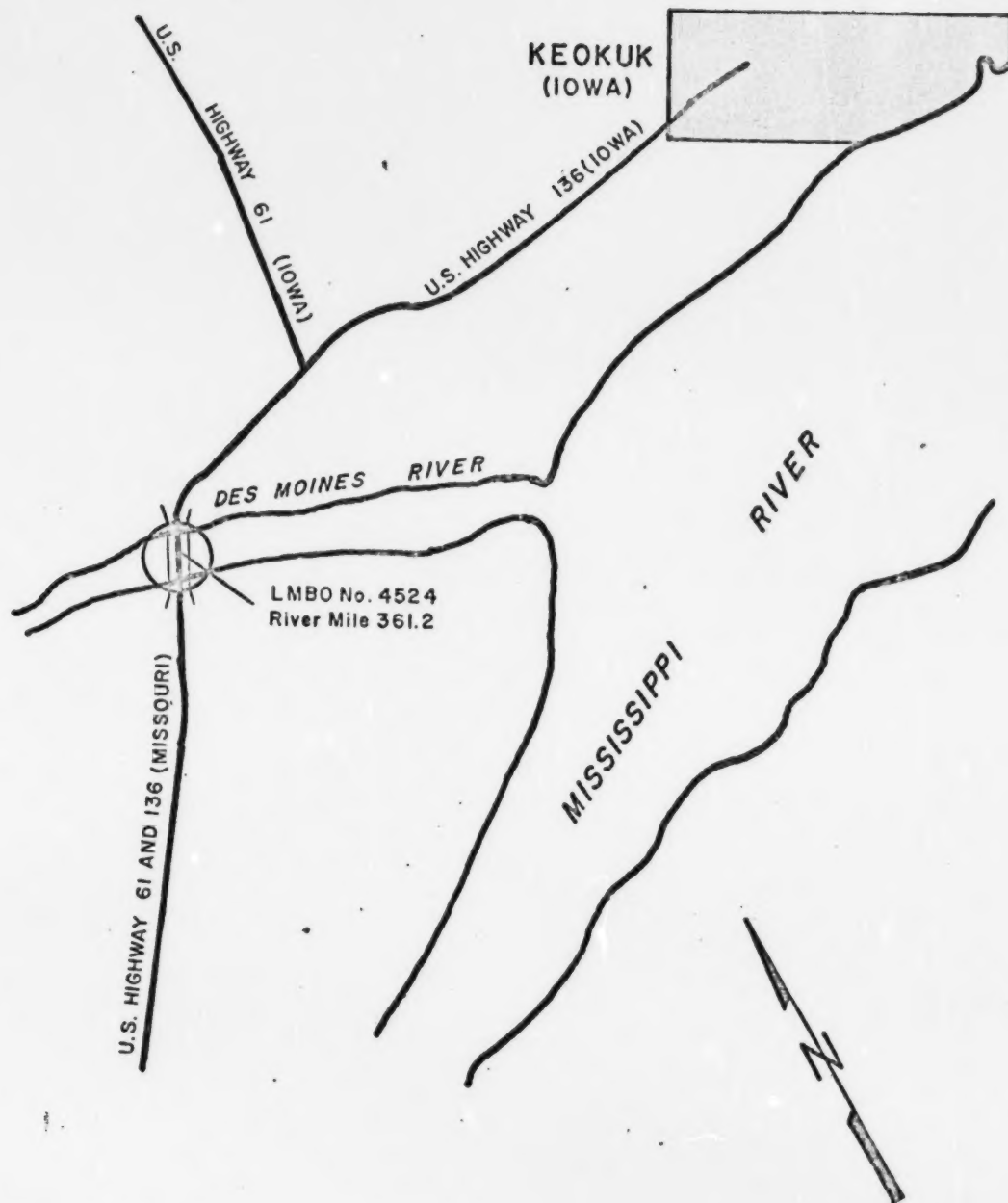
BOTTOM SAMPLE: No Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

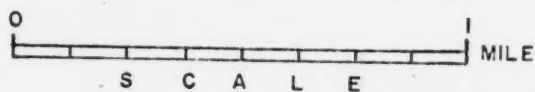
(bank-full) (scouring action)

The bridge is so high over this fast
flowing stream, the bottom sample
could not be taken with the equipment
on hand.

One vehicle tail pipe hanger was
replaced in Keokuk, Iowa, before this
point was sampled.



MISSISSIPPI RIVER
IOWA TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# 4525

DATE: July 30, 1969 PICTURE NOS. #19c, #20c

STREAM: Chaney Creek RIVER MILE: 364.7

LOCATION: North edge of Hamilton, Illinois on Illinois Highway 96 bridge.

TIME: 10:15 a.m.

WEATHER: Clear, Sunny

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Woods, grass land, Park, camp grounds.
Back-up water - No surface gradient.
Heavy Limestone Outcropping.

STREAM BOTTOM: Sandy clay.

TURBIDITY: Very turbid. Visibility 0.0.

STREAM DEPTH: 2'

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: 130'

VELOCITY: (None) fps

CROSS SECTION: 200 □ /

No measurable flow at this point and
FLOW: at Wildest Road bridge upstream cfs

pH: 7.8

WATER TEMP.: 25° C.

AIR TEMP.: 27° C.

DO: 11.8

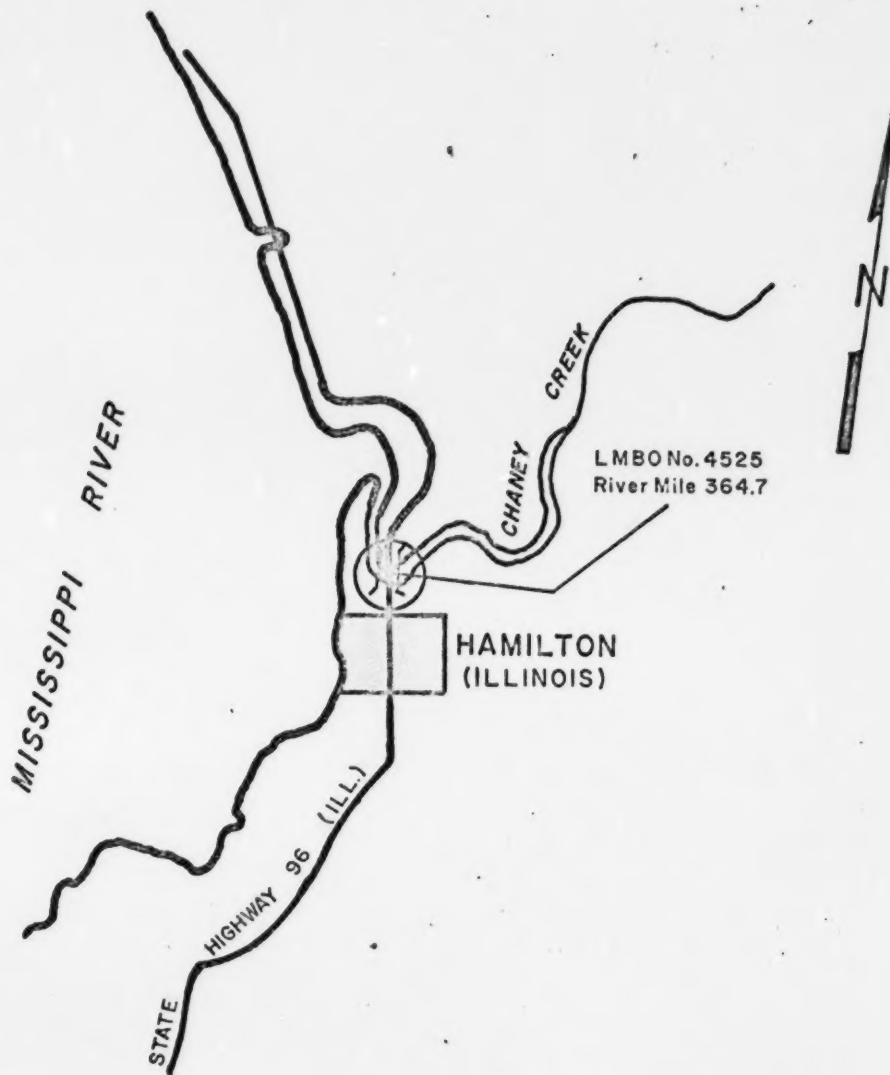
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Abundant Algae. (Sample Taken)

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

LMBO #3 (8-5-69)



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Wednesday LMBO# None (No Samples)*

DATE: July 30, 1969 PICTURE NOS. #21c, #22c, #23c

STREAM: Larry Creek RIVER MILE: 369.1

LOCATION: Township Road east of Illinois Highway 96. North of Hamilton, Ill.
Hancock County.

TIME: 10:30 a.m.

WEATHER: Clear, Bright Sun.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Clay soil, some gravel, some ledge
rock. Woods and bushes and grass -
rough land. Channel has been dredged
to straighten and deepen it.

STREAM BOTTOM: Gravel covered clay bottom.

TURBIDITY: (Not Taken)

STREAM DEPTH: (Not Taken) SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: (Not Taken)

VELOCITY: (Not Measurable) fps

CROSS SECTION: (Not Measurable) 

FLOW: Estimated 1/2 cfs

pH: (Not Measurable)

WATER TEMP.: (Not Measurable)

AIR TEMP.: 27°C.

DO: (Not Measurable)

COD SAMPLE (H₂SO₄): (Not Measurable)

ALGAE: Some Algae Observed.

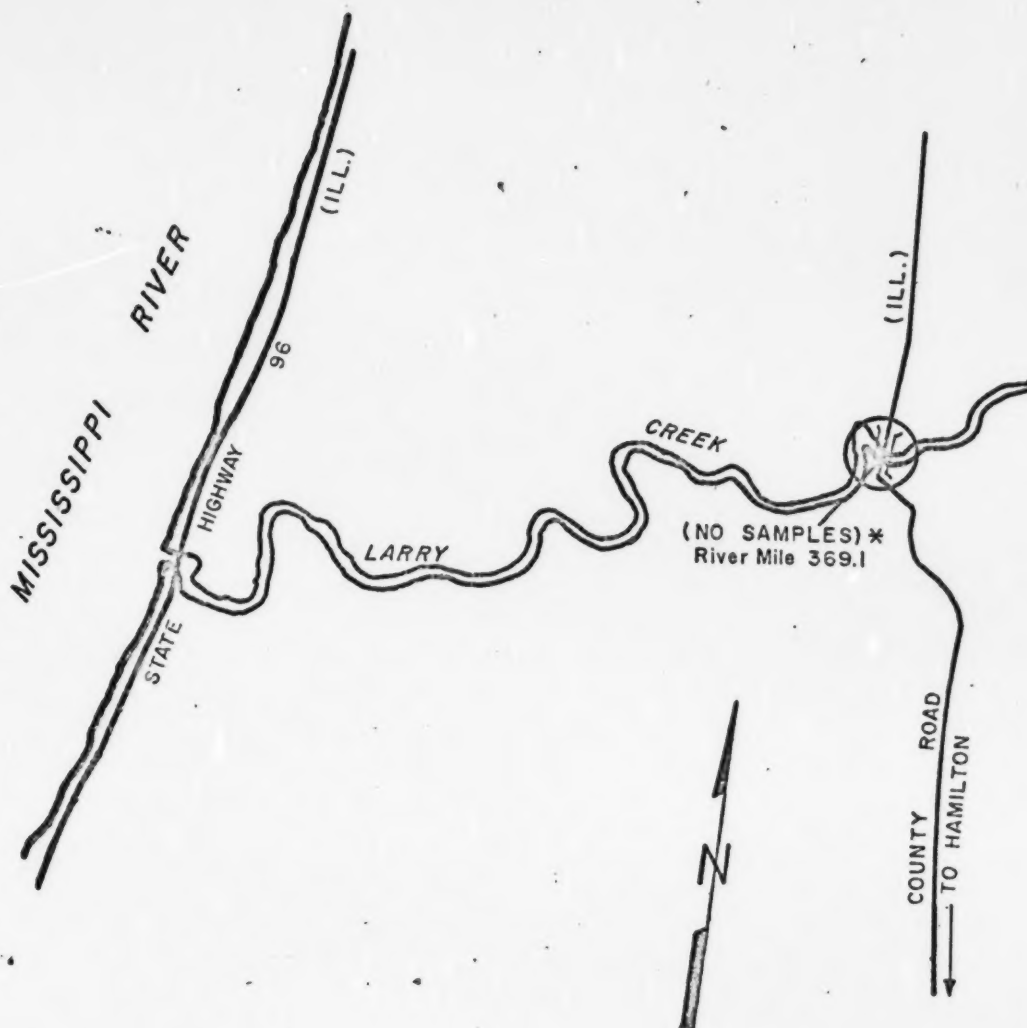
PLANKTON: None

BOTTOM SAMPLE: None

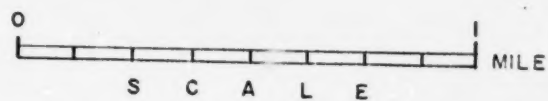
Channel under construction

*Note:

Insufficient depth and flow to
take samples at this point and
back water at Illinois 96.



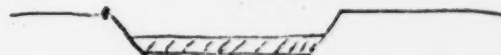
MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

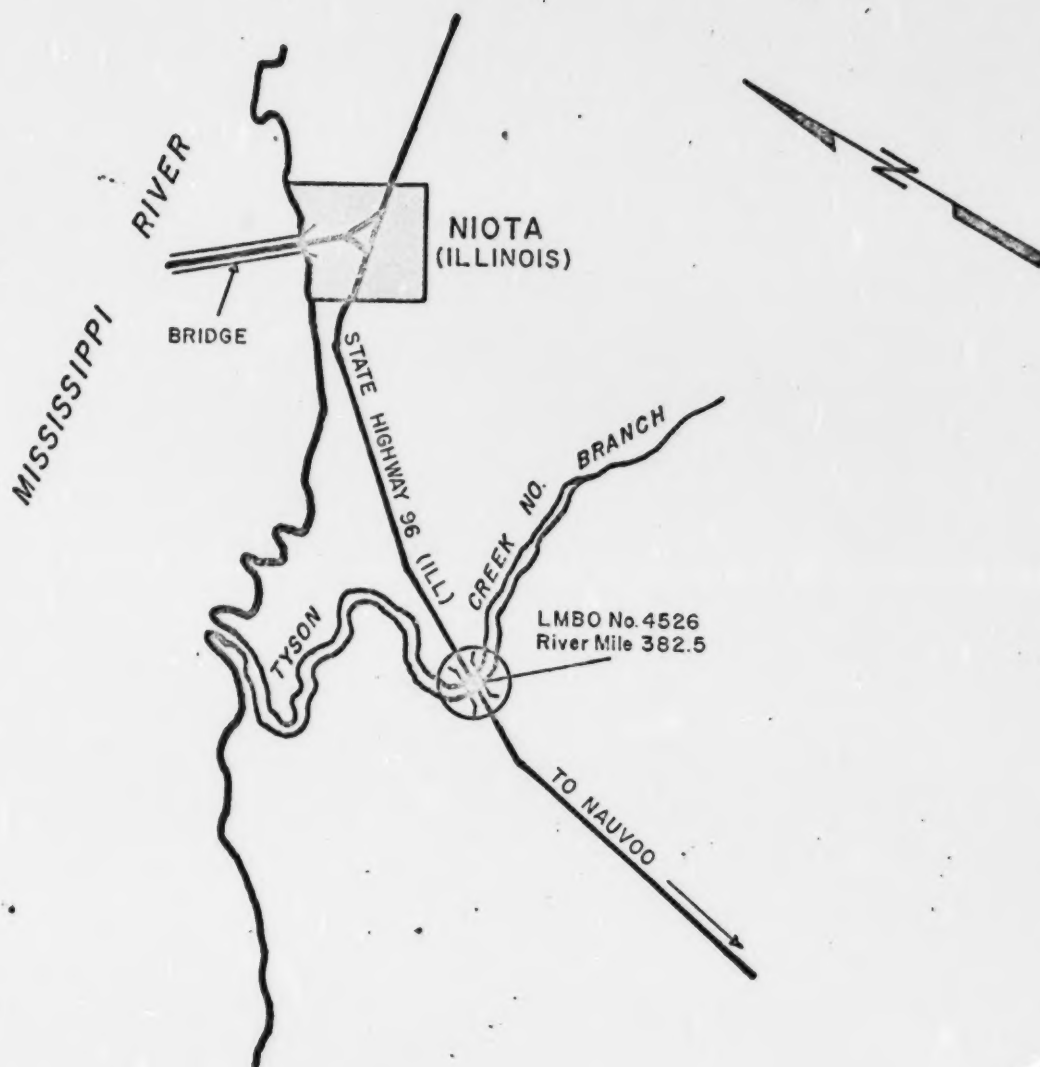
DAY: Wednesday IMBO# 4526
DATE: July 30, 1969 PICTURE NOS. #24c, #25c
STREAM: Tyson Creek, North Branch RIVER MILE: 382.5
LOCATION: On Highway 96. One mile east of Miss. River. North of Nauvoo,
TIME: 11:20 a.m. Illinois, and one mile south of
Niota, Illinois.
WEATHER: Sunny - Hot
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Clay, Hilly, Brush, Trees, Pasture,
Some cultivated fields of small size
here and there. No minnows. Some
marshland downstream.
STREAM BOTTOM: Mud. Sandy clay.
TURBIDITY: 1' Visibility. Little murky.
STREAM DEPTH: 18"
STREAM WIDTH: 15'
VELOCITY: (Not Measurable) fps
CROSS SECTION: 12 □ /
FLOW: (None) cfs
pH: 7.5
WATER TEMP.: 21° C.
AIR TEMP.: 27° C.
DO: 5.6
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: Aquatic Growth on Edges.
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

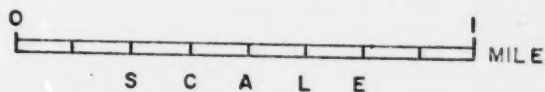


Dish Bottom.

Note: After this sample was taken the crew started back to Dubuque, to start sampling from East Dubuque southward and also pick up additional sampling bottles.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



Seventh Sampling Day
Thursday, July 31, 1969

			<u>River Mile</u>
(1f)	LMBO#	4527	515.5
(2f)	LMBO#	4528	522.0
(3f)	LMBO#	4529	533.0
(4f)	LMBO#	4530	538.3
(5f)	LMBO#	4531	544.6
(6f)	LMBO#	4532	561.5
(7f)	LMBO#	4533	561.5
(8f)	LMBO#	4534	566.9
(9f)	LMBO#	4535	566.9
(10f)	LMBO#	4568	574.2

10 Stations

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday

LMBO# 4527

DATE: July 31, 1969

PICTURE NOS. #26c, #27c

STREAM: Cattail Creek

RIVER MILE: 515.5

LOCATION: Illinois State Highway 84. Bridge, south of U.S. Highway 30
and Fulton, Illinois.

TIME: 12:30 p.m.

WEATHER: Cloudy - Threat of Rain

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Dense woods and underbrush near
stream. Cropland, cultivated,
1/10 mile back from stream.

STREAM BOTTOM: Mud over sandy bottom. Lot of debris. Evidence of recent
high water.

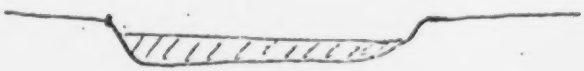
TURBIDITY: Lot of gas bubbles. High turbidity.

STREAM DEPTH: 2'

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: 70'

VELOCITY: 0.25 fps

CROSS SECTION: 100 

FLOW: 25 cfs

pH: 7.3

WATER TEMP.: 21° C.

AIR TEMP.: 27° C.

DO: 5.8

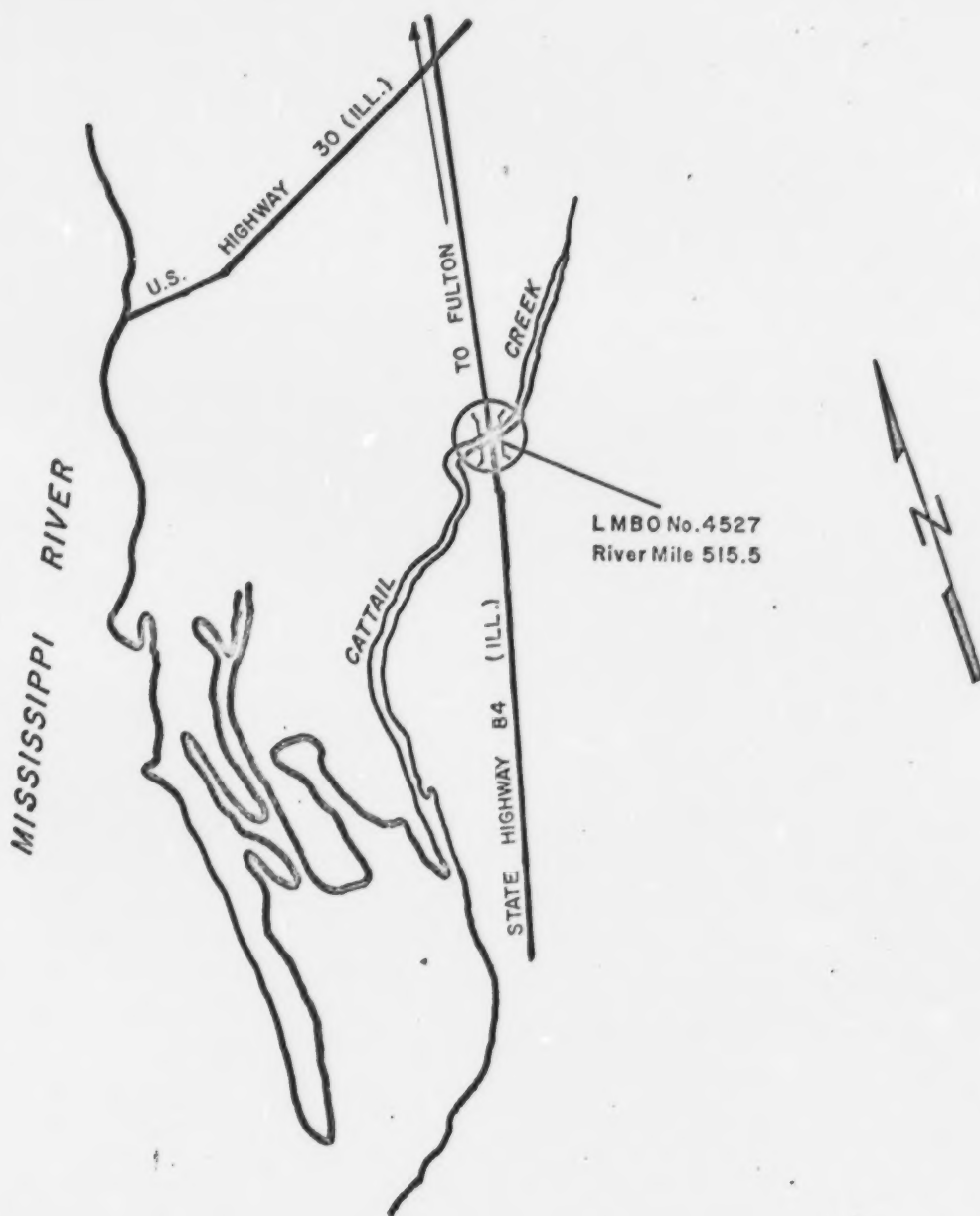
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.

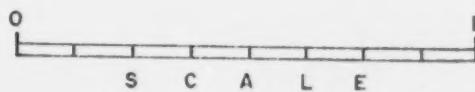
PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

Note: After being called from Dubuque
to Clinton for a conference,
and having both the truck and
carry-all serviced; we commenced with
this station.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



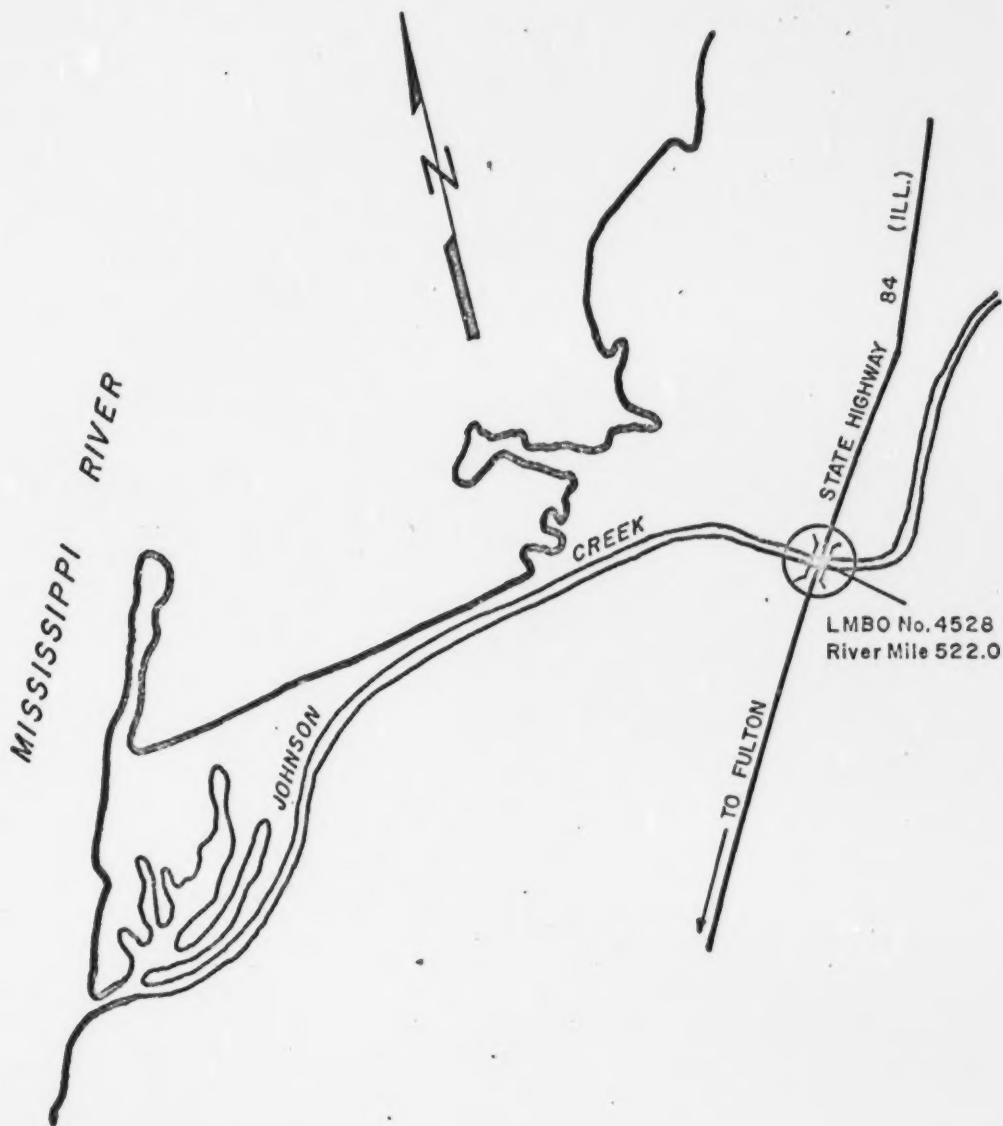
MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday IMBO# 4528
DATE: July 31, 1969 PICTURE NOS. #28c, #29c, #30c
STREAM: Johnson Creek RIVER MILE: 522.0
LOCATION: Illinois State Highway 84. Bridge. north of U.S. Highway 30
TIME: 1:00 p.m. and Fulton, Illinois.
WEATHER: Cloudy - Threat of Rain.
SOIL TYPE AND
OTHER PHYSICAL All river bottom cropland, corn,
OBSERVATIONS: hay. Sandy loam.

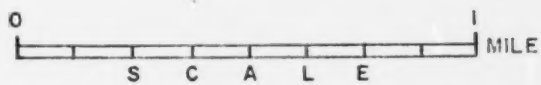
STREAM BOTTOM: Sandy.
TURBIDITY: 100% Visibility.
STREAM DEPTH: 12"
STREAM WIDTH: 60'
VELOCITY: 1.8 fps
CROSS SECTION: 60 □ /
FLOW: 105 cfs
pH: 8.0
WATER TEMP.: 24° C.
AIR TEMP.: 26° C.
DO: 7.5
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: Slight aquatic growth & some
algae, Cladophora.
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday

LMBO# 4529

DATE: July 31, 1969

PICTURE NOS. #31c, #32c, #33c, #34c, #35c

STREAM: Plum River

RIVER MILE: 533.0

LOCATION: Illinois State Highway 84 Bridge, south of U.S. Highway 30 and
southeast of Savanna, Illinois.

TIME: 1:30 p.m. to 1:45 p.m.

WEATHER: Cloudy - Threat of Rain.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Swamp, Hills, Brush and Trees in
wide valley - cropland on adjacent
higher land. Agricultural.

STREAM BOTTOM: Sandy Clay.

TURBIDITY: 15% Visibility - High silt load.

STREAM DEPTH: 4'

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: 75'

VELOCITY: 1.0 fps

CROSS SECTION: 210 □ /

FLOW: 210 cfs

pH: 7.3

WATER TEMP.: 21° C.

AIR TEMP.: 23° C.

DO: 6.8

COD SAMPLE (H₂SO₄): Sample Taken.

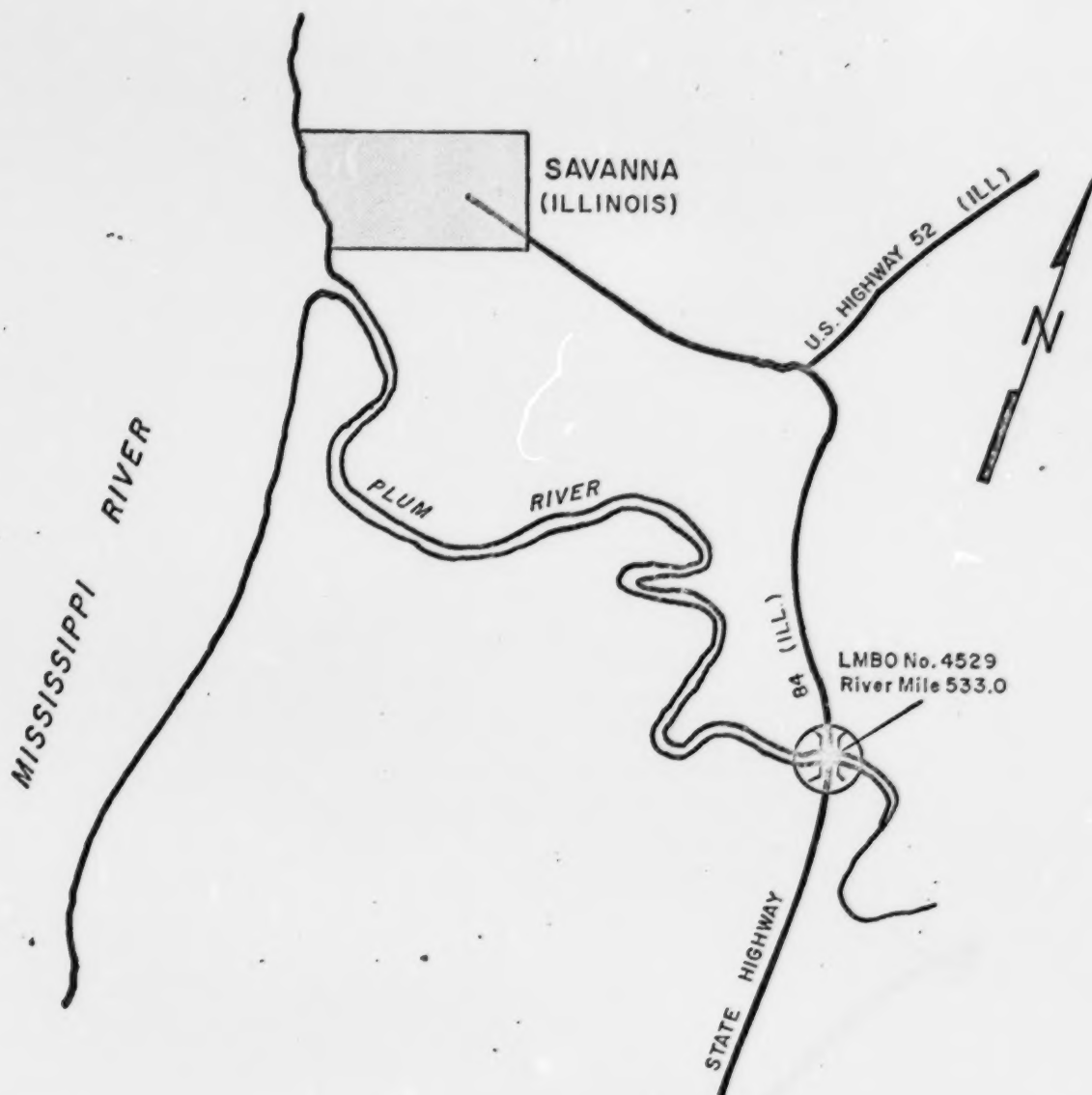
ALGAE: None Visible.

PLANKTON: Sample Taken.

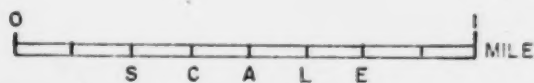
BOTTOM SAMPLE: Sample Taken.



Our truck stopped by state police
south of this point and warned
for operating car on Illinois
State highways without mud flaps.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

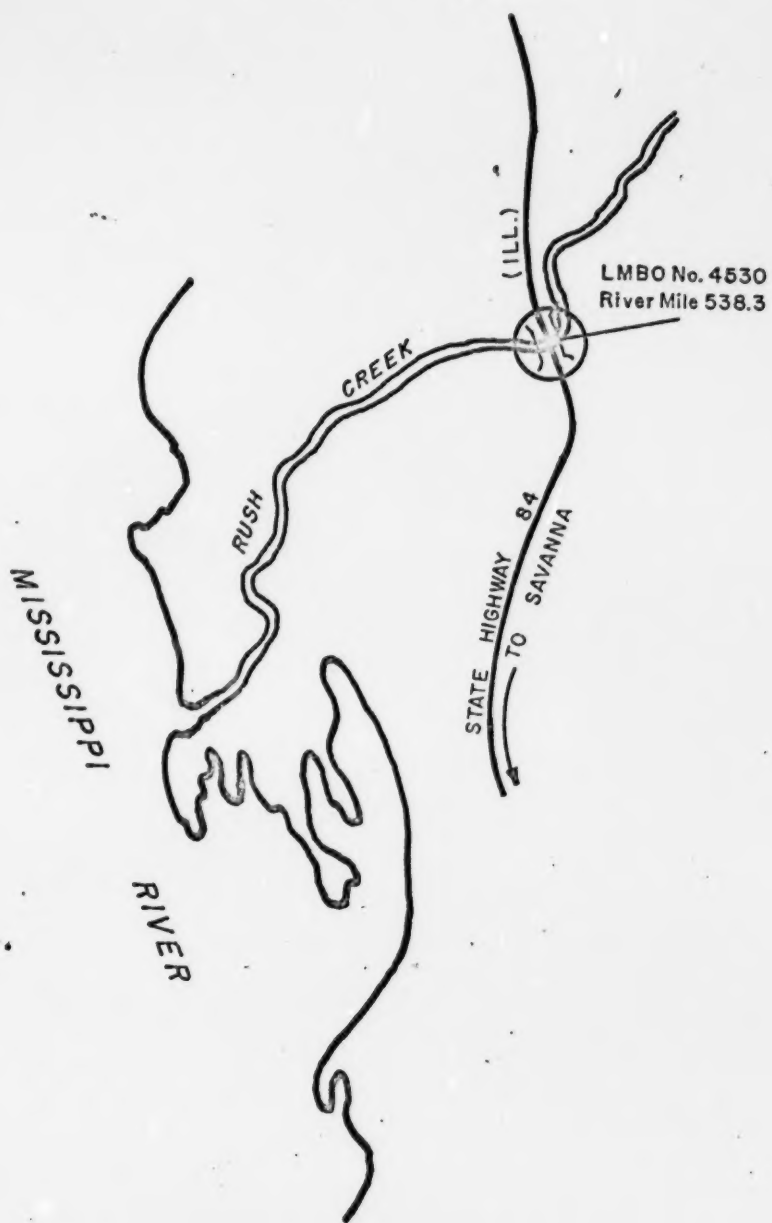
DAY: Thursday LMBO# 4530
DATE: July 31, 1969 PICTURE NOS. #36c, #1d, #2d
STREAM: Rush Creek RIVER MILE: 538.3
LOCATION: Illinois State Highway 84, north of Savanna, Illinois.
TIME: 2:00 p.m.
WEATHER: Cloudy & some sun (windy)
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Dense brush and trees near stream.
Agricultural land back of stream.

STREAM BOTTOM: Sandy
TURBIDITY: Very Turbid.
STREAM DEPTH: 2'
STREAM WIDTH: 40'
VELOCITY: 3 fps
CROSS SECTION: 70 □ /
FLOW: 210 cfs
pH: 7.8
WATER TEMP.: 22° C.
AIR TEMP.: 25° C.
DO: 7.8
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: Sample Taken.
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

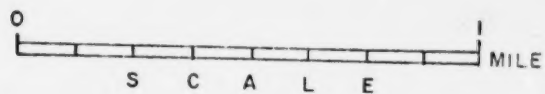
SKETCHES AND
OTHER FIELD
NOTES:



Heavy recent rains have caused
some back-up water to be trapped
in trees and brush.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday IMBO# 4531
DATE: July 31, 1969 PICTURE NOS. #3d, #4d, #5d, #6d *
STREAM: Apple River RIVER MILE: 544.6
LOCATION: Illinois State Highway 84 side road bridge, north of Savanna, Ill.
TIME: 2:20 p.m. in Jo Daviess County.
WEATHER: Sunny-White Cumulus Clouds.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

Typical river bottom land with
higher banks back of corn fields.
Dense brush and trees along river.

STREAM BOTTOM: Sandy

TURBIDITY: Evidence of high water. Murky. 8" Visibility.

STREAM DEPTH: 3 $\frac{1}{2}$ '

STREAM WIDTH: 68'

VELOCITY: 1 $\frac{1}{2}$ fps

CROSS SECTION: 210 □ /

FLOW: 265 cfs

pH: 7.8

WATER TEMP.: 22°C.

AIR TEMP.: 27°C.

DO: 6.8

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Evidence of Algae. Sample Taken.

PLANKTON: Sample Taken.

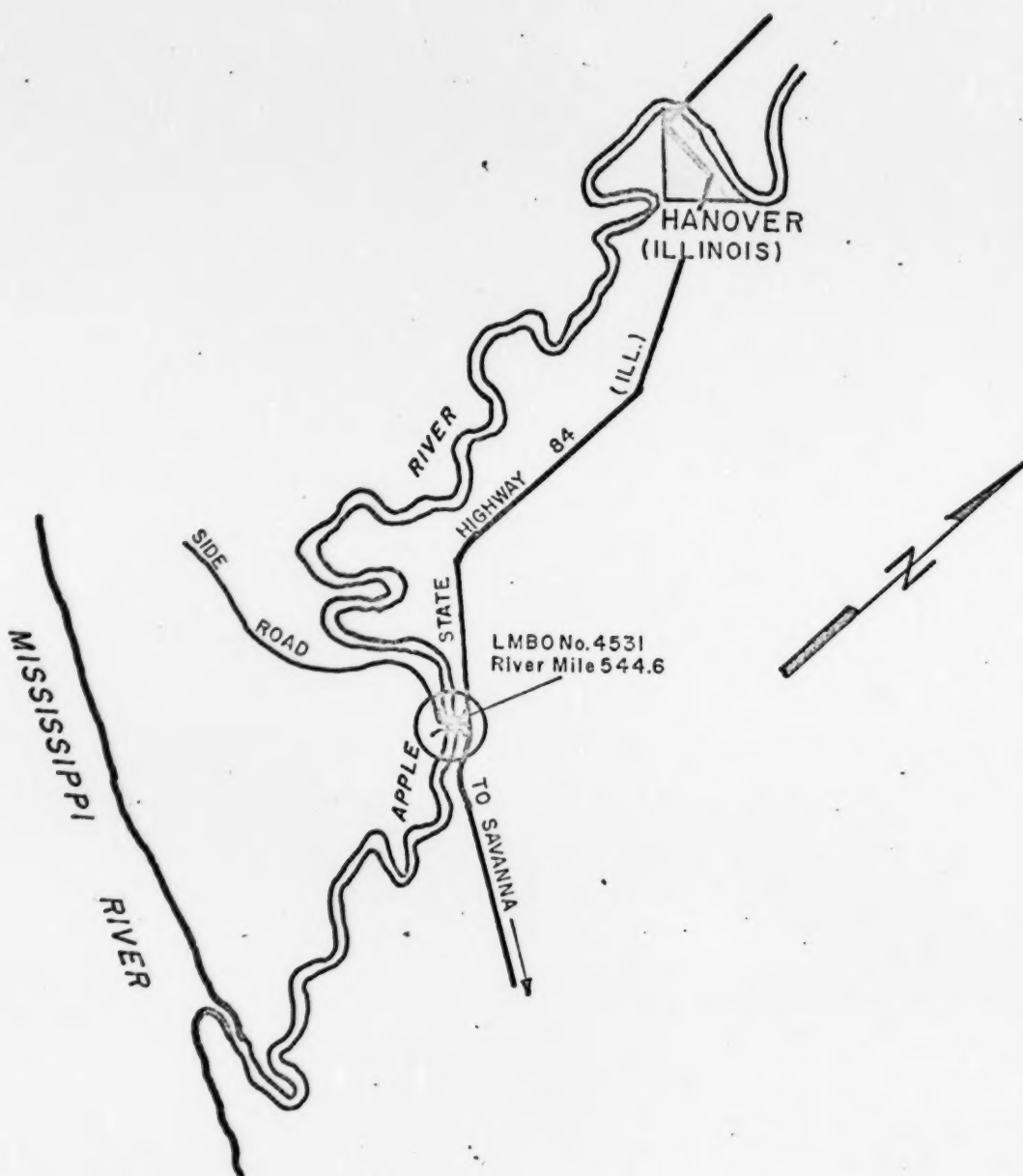
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

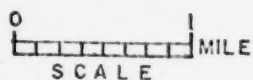


*Pictures #7d and #8d - Scenic Views
of Apple River Valley, south of
Dubuque.

Six miles up-river from Miss. First
bridge. Supports a large variety of
fish (catfish, gar, carp, perch, and
pike). Some bass.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4532
DATE: July 31, 1969 PICTURE NOS. #9d, #10d, #11d
STREAM: Small Fox Creek RIVER MILE: 561.5
LOCATION: Illinois State Highway 84 and U. S. Highway 20, southeast of
Galena, Illinois.
TIME: 3:05 p.m.
WEATHER: Bright, Sunny, Hot -
Scattered Cumulus Clouds.
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: High hills, narrow flood plain,
winding gravelly bottom stream with
good flow. Pasture land on bottom
levels and hills. Crop land on
upper levels.
STREAM BOTTOM: Gravel
TURBIDITY: Good Visibility, slightly murky, bottom visible at 8".
STREAM DEPTH: 8" SKETCHES AND
STREAM WIDTH: 30' OTHER FIELD
NOTES:
VELOCITY: 1.5 fps
CROSS SECTION: 20 
FLOW: 30 cfs
pH: 7.8
WATER TEMP.: 22° C.
AIR TEMP.: 27° C.
DO: 10.9
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: None visible, scoured clean.
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday IMBO# 4533
DATE: July 31, 1969 PICTURE NOS. #12d, #13d, #14d
STREAM: Galena River RIVER MILE: 561.5
LOCATION: Illinois State Highway 84 and U. S. Highway 20 in Galena, Ill.
TIME: 3:30 p.m.
WEATHER: Bright Sun

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

High hills, trees, and City of
Galena. Bad, fetid, dead fish
odors. Tinge of oil in spots.

STREAM BOTTOM: Sand and silt.

TURBIDITY: 6" visibility

STREAM DEPTH: 4'

STREAM WIDTH: 90'

VELOCITY: 1.2 fps

CROSS SECTION: 325 □ /

FLOW: 390 cfs

pH: 7.8

WATER TEMP.: 23° C.

AIR TEMP.: 30° C.

DO: 6.7

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Scoured Clean

PLANKTON: Sample Taken.

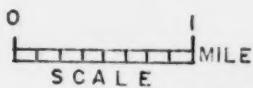
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4534

DATE: July 31, 1969 PICTURE NOS. #15d, 16d, 17d, 18d, 19d, 20d, 21d

STREAM: Sinsinawa River RIVER MILE: 566.9

LOCATION: Illinois State Highway 84 and U. S. Highway 20, Northwest of
Galena, Illinois.

TIME: 4:15 p.m.

WEATHER: Bright Sun, Breezy.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Cropland, pasture, woods

STREAM BOTTOM: Gravel over sandy bottom.

TURBIDITY: Murky 12"

STREAM DEPTH: 18"

STREAM WIDTH: 60'

VELOCITY: .9 fps

CROSS SECTION: 80 □ /

FLOW: 72 cfs

pH: 7.9

WATER TEMP.: 24° C.

AIR TEMP.: 28° C.

DO: 8.5

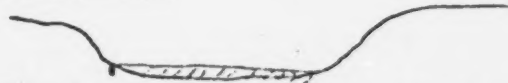
COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Sample Taken.
None Visible from bridge.

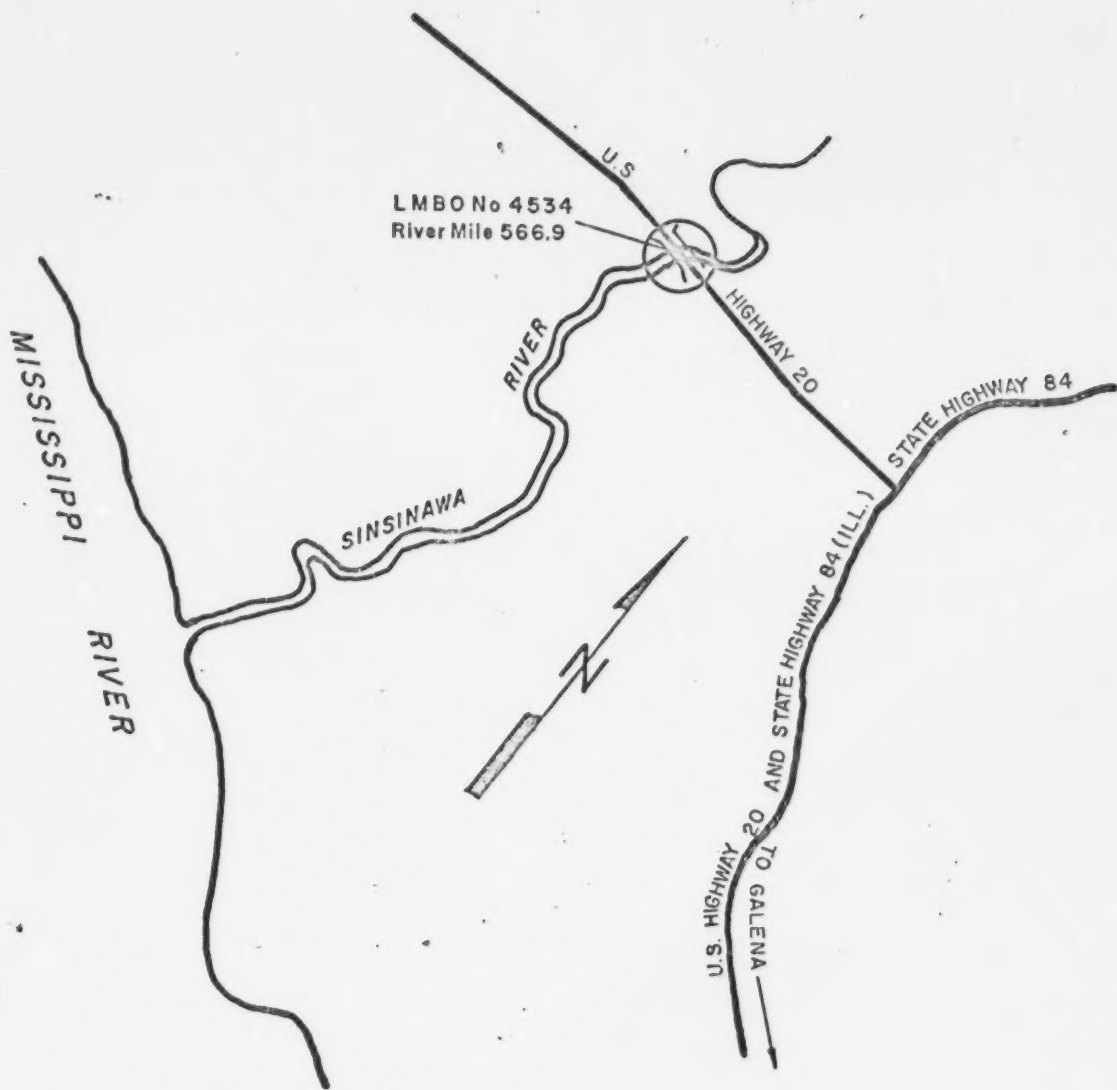
PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:



Gravel bars and sand bars upstream
from bridge.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday IMBO# 4535

DATE: July 31, 1969 PICTURE NOS. #22d, 23d, 24d, 25d

STREAM: Little Menominee River RIVER MILE: 566.9

LOCATION: U. S. Highway 20 west of Galena, Illinois.

TIME: 4:40 p.m.

WEATHER: Bright Sun, Breezy.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

High hills on each side of narrow valley. Corn in bottom. Some pasture land. Trees. Sandy clay over ledge rock-soft lime mixed with laminations of sandstone.

STREAM BOTTOM: Gravelly Bottom

TURBIDITY: Clear

STREAM DEPTH: 10"

STREAM WIDTH: 20'

VELOCITY: 3 fps

CROSS SECTION: 10 

FLOW: 30 cfs

pH: 8.1

WATER TEMP.: 24° C.

AIR TEMP.: 28° C.

DO: 9.3

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: Some algae on the rocks.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:



boulders in stream

MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Thursday LMBO# 4568

DATE: July 31, 1969 PICTURE NOS. #26d, #27d, #28d

STREAM: Menominee River RIVER MILE: 574.2

LOCATION: U. S. Highway 20 west of Galena, Illinois.

TIME: 4:55 p.m. to 5:10 p.m.

WEATHER: Bright, Sunny, Breezy

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

High hills, woods, pasture, bushes.
Lot of sand bars, old. No sand bars
forming. (No minnows or fish visible.)

STREAM BOTTOM: Sandy. Recently scoured.

TURBIDITY: Visibility 2'

STREAM DEPTH: 2'

STREAM WIDTH: 30'

VELOCITY: 0.5 fps

CROSS SECTION: 56 □ /

FLOW: 28 cfs

pH: 7.8

WATER TEMP.: 23°C.

AIR TEMP.: 28°C.

DO: 8.1

COD SAMPLE (H₂SO₄): Sample Taken.

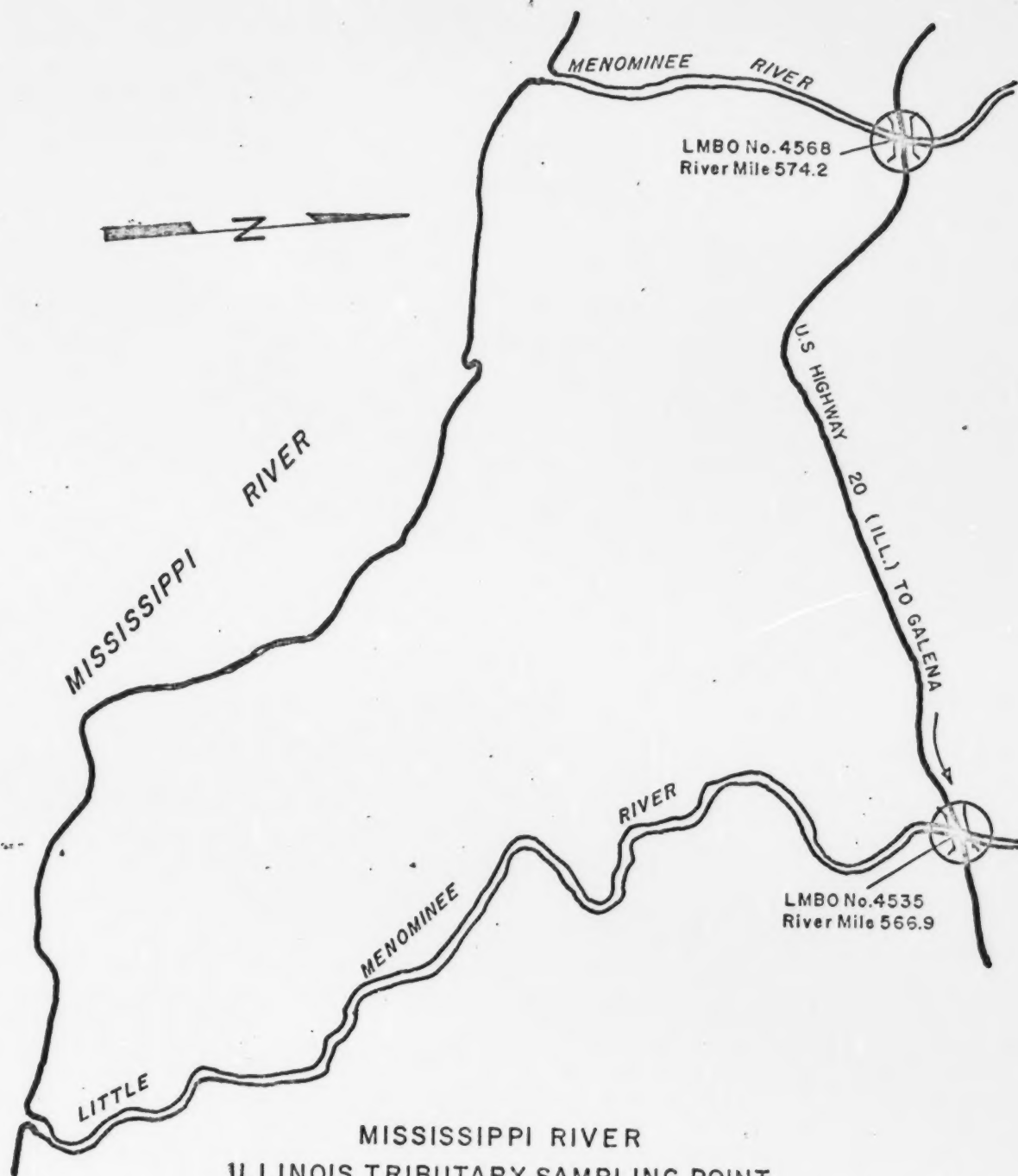
ALGAE: Sample Taken.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





0 1 MILE
S C A L E

Eighth Sampling Day
Friday, August 1, 1969

			<u>River Mile</u>
(1g)	LMBO#	4569	514.1
(2g)	LMBO#	4570	496.4
(3g)	LMBO#	4571	489.4

3 Stations

Travelled Home

Tributary Sampling Crew
this day only was:

Viktora

Buchanan

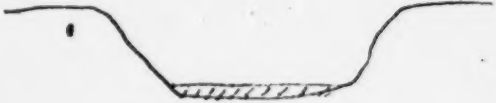
Wojcik

Schmitt

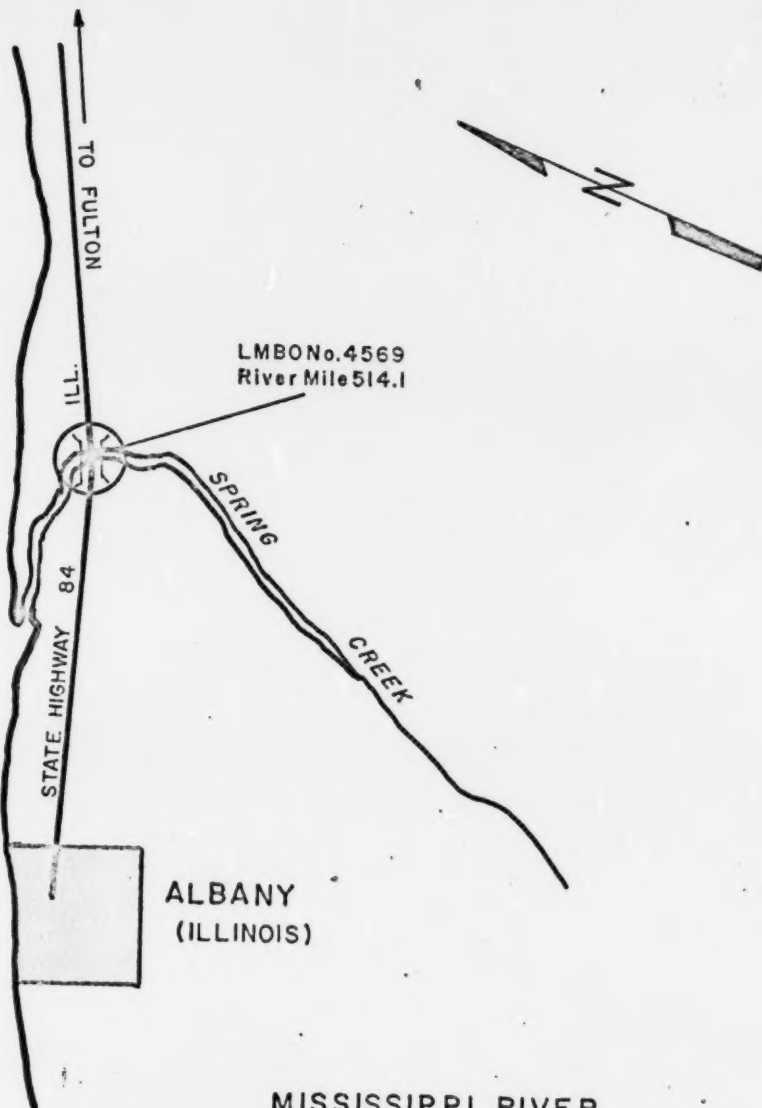
Chorowicki

MISSISSIPPI TRIBUTARIES - FIELD DATA

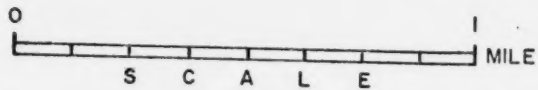
DAY: Friday LMBO# 4569
DATE: August 1, 1969 PICTURE NOS. #29d, #30d
STREAM: Spring Creek RIVER MILE: 514.1
LOCATION: Illinois State Highway 84, northeast of Albany, Illinois, in
Whiteside County. (Southeast of
TIME: 8:45 a.m. to 8:55 a.m. Clinton, Iowa.)
WEATHER: Partly Cloudy
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: Two rapids upstream. Cropland,
pasture, heavy tree and bush cover.

STREAM BOTTOM: Sand and broken away sandstone
TURBIDITY: Clear
STREAM DEPTH: 4" Average SKETCHES AND
STREAM WIDTH: 8' OTHER FIELD
NOTES:
VELOCITY: 1 1/2 fps
CROSS SECTION: 2 
FLOW: 3.0 cfs
pH: 7.8
WATER TEMP.: 17° C.
AIR TEMP.: 20° C.
DO: 8.6
COD SAMPLE (H₂SO₄): Sample Taken.
Sample Taken.
ALGAE: Some algae observed but not very
much.
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

MISSISSIPPI RIVER



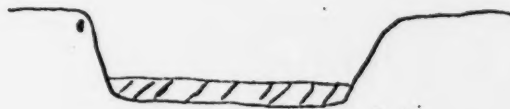
MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT

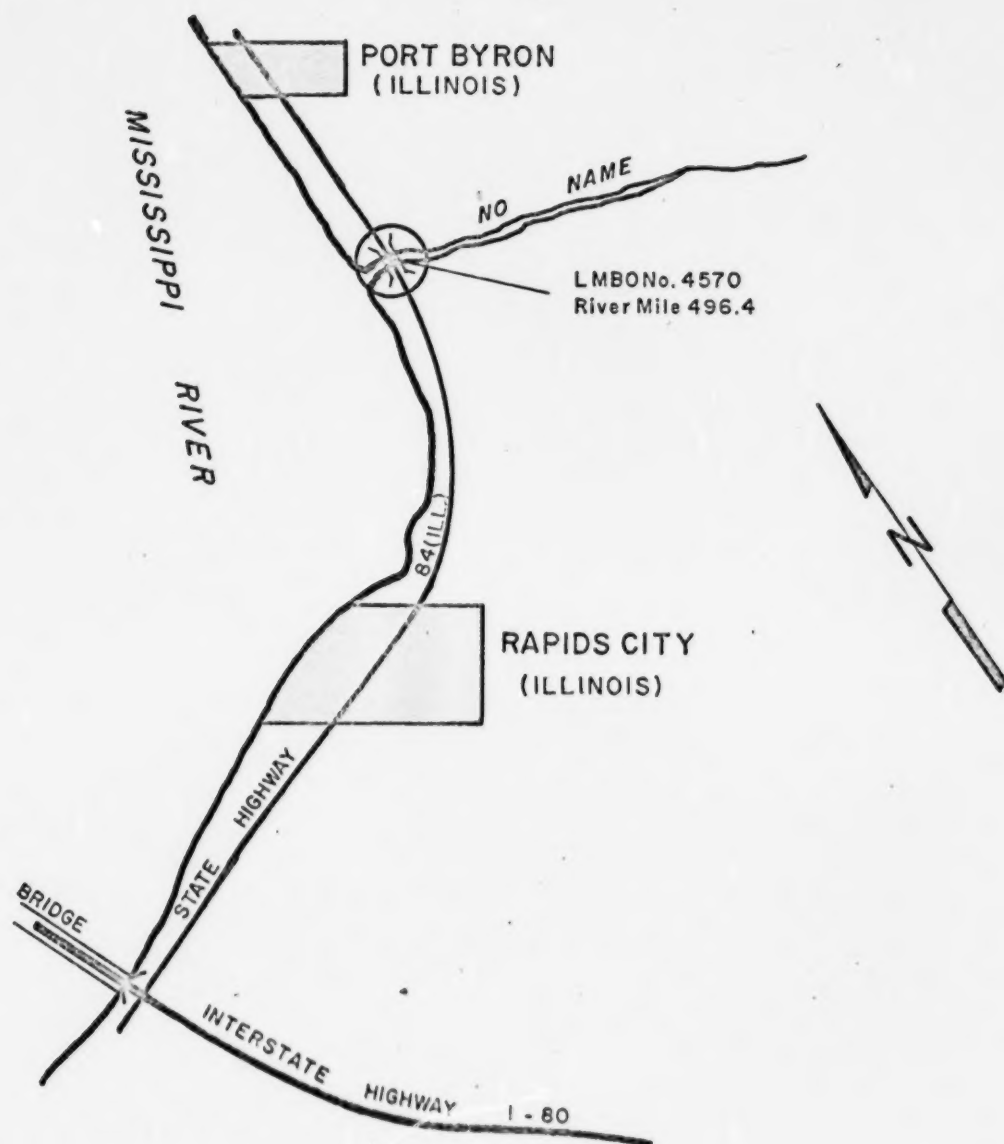


MISSISSIPPI TRIBUTARIES - FIELD DATA

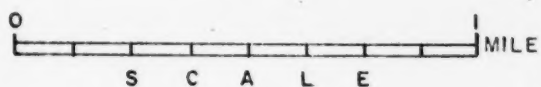
DAY: Friday LMBO# 4570
DATE: August 1, 1969 PICTURE NOS. #31d, #32d
STREAM: (No Name) RIVER MILE: 496.4
LOCATION: Illinois State Highway 84, between Port Byron and Rapids City, Ill.
TIME: 9:20 a.m. - 9:30 a.m. This area is just north of Interstate Highway I-80.
WEATHER: Partly Cloudy
SOIL TYPE AND High bank. Sandy clay. Lots of
OTHER PHYSICAL trees and bushes. Bluff to the
OBSERVATIONS: east. Occasional summer cottages.
Cropland upstream.
STREAM BOTTOM: Sandy. Big boulders. Debris.
TURBIDITY: 50%
STREAM DEPTH: 2'
STREAM WIDTH: 20'
VELOCITY: .1 fps
CROSS SECTION: 30 □ /
FLOW: 3 cfs
pH: 7.9
WATER TEMP.: 18.0° C.
AIR TEMP.: 22.5° C.
DO: 8.0
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: On rocks and Cladophora.
PLANKTON: Sample Taken.
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:





MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



MISSISSIPPI TRIBUTARIES - FIELD DATA

DAY: Friday LMBO# 4571
DATE: August 1, 1969 PICTURE NOS. #33d, #34d, #35d, #36d,
#37d
STREAM: Sugar Creek RIVER MILE: 489.4

LOCATION: Illinois State Highway 84, in East Moline, Illinois.

TIME: 9:42 a.m. - 10:02 a.m.

WEATHER: Light Clouds, Almost Clear.

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

In a residential area below
cultivated fields and industrial
areas upstream. Sandy banks.

STREAM BOTTOM: Rocky, beer cans, rapids over rocks. Some sand too.

TURBIDITY: Clear. According to local police officer:*

STREAM DEPTH: 8"

STREAM WIDTH: 12'

VELOCITY: 4 fps

CROSS SECTION: 7 

FLOW: 28 cfs

pH: 7.4

WATER TEMP.: 20.0°C.

AIR TEMP.: 22.5°C.

DO: 6.1

COD SAMPLE (H₂SO₄): Sample Taken.

Cladophora and other algae
ALGAE: on the sides and rocks.

PLANKTON: Sample Taken.

BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:



*John Deere Foundry and the Silvis
shops of the Rock Island Line are
just upstream and Sugar Creek is
usually covered with oil from their
oil dumpings on ground near the
creek. All industrial plants in the
upstream area should be checked for
pollutional discharges. Particularly,
oily wastes.

(See local newspaper clipping attached.)

*East Moline
Illinois
paper
dated
8-1-69*

Oil Fire Disrupts Power 8-1-69

The John Deere Foundry Unit No. 1 experienced a brief interruption of electrical service about 6:35 p.m. Thursday when fire broke out in an oily swamp area north of the Silvis Shops of Rock Island Lines, authorities said.

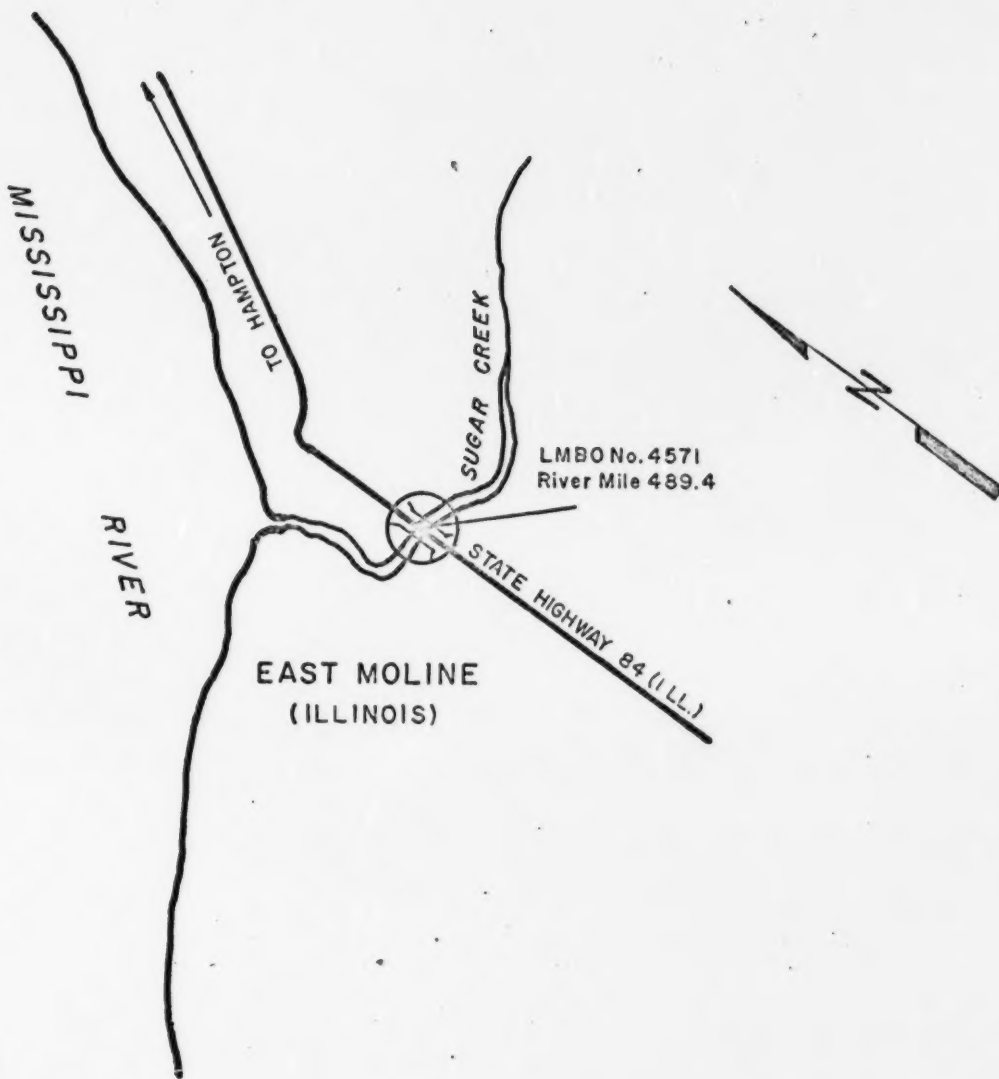
Cause of the fire, which sent dark clouds of smoke billowing over the area, has not been determined, firemen said.

A spokesman for Iowa-Illinois Gas & Electric Co. said some of the company's poles were ignited by flames and insulators accumulated smoke and soot causing some flash-over.

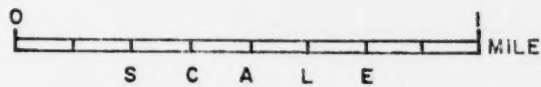
There were three "dips" in electrical power in the Quad-City area, noticeably causing some flickering of lights as a result of the incident, the utility company spokesman said.

The swamp area, where firemen say pools of water and oil form, is also adjacent to Minnesota Paints Inc., 2500 8th Ave., East Moline.

Fire units from both East Moline and Silvis stood by to guard against spread of flames. However, it was not necessary to place fire equipment in use, East Moline firemen said. The blaze was allowed to burn itself down to smoldering level.



MISSISSIPPI RIVER
ILLINOIS TRIBUTARY SAMPLING POINT



Appendix

Field Data Records -

Main Stem Reconnaissance

MISSISSIPPI RIVER - FIELD DATA

DAY: Friday LMBO# 4594

DATE: July 25, 1969 PICTURE NOS. _____

STREAM: Miss. River below RIVER MILE: 487.3
&

LOCATION: Dubuque STP.

TIME: 11:30 a.m.

WEATHER: _____

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: _____

TURBIDITY: _____

SAMPLE
STREAM DEPTH: 4 Meters SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: _____

VELOCITY: _____ fps

CROSS SECTION: D /

FLOW: _____ cfs

pH: _____

WATER TEMP.: 29.8

AIR TEMP.: _____

DO: _____

COD SAMPLE (H₂SO₄): _____

ALGAE: _____

PLANKTON: _____

BOTTOM SAMPLE: Sample Taken.

MISSISSIPPI RIVER - FIELD DATA

DAY: Monday LMBO# 4566
DATE: July 28, 1969 PICTURE NOS. _____
STREAM: Menominee River at mouth RIVER MILE: 574.5
&
LOCATION: _____
TIME: 3:45 p.m.
WEATHER: _____
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: _____
TURBIDITY: _____
SAMPLE
STREAM DEPTH: 1 Meter SKETCHES AND
OTHER FIELD
STREAM WIDTH: _____ NOTES: _____
VELOCITY: _____ fps
CROSS SECTION: □ /
FLOW: _____ cfs
pH: _____
WATER TEMP.: _____
AIR TEMP.: _____
DO: _____
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: _____
PLANKTON: _____
BOTTOM SAMPLE: Sample Taken.

MISSISSIPPI RIVER - FIELD DATA

DAY: Tuesday LMBO# 4567

DATE: July 29, 1969 PICTURE NOS.

STREAM: Catfish Creek RIVER MILE:

LOCATION: at mouth

TIME: 2:15 p.m.

WEATHER:

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM:

TURBIDITY:

SAMPLE

STREAM DEPTH: 4 Meters

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH:

VELOCITY: fps

CROSS SECTION: □ /

FLOW: cfs

pH:

WATER TEMP.: 24.5

AIR TEMP.:

DO:

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE:

PLANKTON:

BOTTOM SAMPLE: Sample Taken.

MISSISSIPPI RIVER - FIELD DATA

DAY: Wednesday LMBO# 4559

DATE: July 30, 1969 PICTURE NOS. _____

STREAM: Beaver Slough RIVER MILE: _____

&
LOCATION: at Effluent #1

TIME: _____

WEATHER: _____

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: _____

STREAM BOTTOM: _____

TURBIDITY: _____

STREAM DEPTH: _____ SKETCHES AND
STREAM WIDTH: _____ OTHER FIELD
NOTES: _____

VELOCITY: _____ fps

CROSS SECTION: □ /

FLOW: _____ cfs

pH: _____

WATER TEMP.: 29.0

AIR TEMP.: _____

DO: _____

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: _____

PLANKTON: _____

BOTTOM SAMPLE: _____

MISSISSIPPI RIVER - FIELD DATA

DAY: Wednesday LMBO# 4560

DATE: July 30, 1969 PICTURE NOS. _____

STREAM: Beaver Slough RIVER MILE: _____

&
LOCATION: at Effluent #2

TIME: _____

WEATHER: _____

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: _____

TURBIDITY: _____

STREAM DEPTH: _____

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: _____

VELOCITY: _____ fps

CROSS SECTION: □ /

FLOW: _____ cfs

pH: _____

WATER TEMP.: 31.0

AIR TEMP.: _____

DO: _____

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE: _____

PLANKTON: _____

BOTTOM SAMPLE: _____

MISSISSIPPI RIVER - FIELD DATA

DAY: Wednesday LMBO# 4561
DATE: July 30, 1969 PICTURE NOS. _____
STREAM: Beaver Slough RIVER MILE: _____
&
LOCATION: at Effluent #3
TIME: _____
WEATHER: _____
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: _____
TURBIDITY: _____
STREAM DEPTH: _____ SKETCHES AND
STREAM WIDTH: _____ OTHER FIELD
NOTES:
VELOCITY: _____ fps
CROSS SECTION: □ /
FLOW: _____ cfs
pH: _____
WATER TEMP.: 26.0
AIR TEMP.: _____
DO: _____
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: _____
PLANKTON: _____
BOTTOM SAMPLE: _____

MISSISSIPPI RIVER - FIELD DATA

DAY: Wednesday LMBO# 4562

DATE: July 30, 1969 PICTURE NOS.

STREAM: Beaver Slough RIVER MILE:

&
LOCATION: at Effluent #4

TIME:

WEATHER:

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM:

TURBIDITY:

STREAM DEPTH:

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH:

VELOCITY: fps

CROSS SECTION: □ /

FLOW: cfs

pH:

WATER TEMP.: 29.0

AIR TEMP.:

DO:

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE:

PLANKTON:

BOTTOM SAMPLE:

MISSISSIPPI RIVER - FIELD DATA

DAY: Wednesday

LMBO# 4563

DATE: July 30, 1969

PICTURE NOS.

STREAM: Beaver Slough

RIVER MILE:

&
LOCATION: at Effluent #5

TIME:

WEATHER:

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM:

TURBIDITY:

STREAM DEPTH:

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH:

VELOCITY:

fps

CROSS SECTION:

D /

FLOW:

cfs

pH:

WATER TEMP.: 28.0

AIR TEMP.:

DO:

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE:

PLANKTON:

BOTTOM SAMPLE:

LMBO #4 (8-15-69)

MISSISSIPPI RIVER - FIELD DATA

DAY: Wednesday LMBO# 4564
DATE: July 30, 1969 PICTURE NOS. _____
STREAM: Beaver Slough RIVER MILE: _____
&
LOCATION: at Effluent #6
TIME: _____
WEATHER: _____
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: _____
TURBIDITY: _____
STREAM DEPTH: _____ SKETCHES AND
STREAM WIDTH: _____ OTHER FIELD
NOTES:
VELOCITY: _____ fps
CROSS SECTION: 0 /
FLOW: _____ cfs
pH: _____
WATER TEMP.: 30.0
AIR TEMP.: _____
DO: _____
COD SAMPLE (H₂SO₄): Sample Taken.
ALGAE: _____
PLANKTON: _____
BOTTOM SAMPLE: _____

MISSISSIPPI RIVER - FIELD DATA

DAY: Wednesday LMBO# 4565

DATE: July 30, 1969 PICTURE NOS.

STREAM: Beaver Slough RIVER MILE:

&
LOCATION: at Effluent #7

TIME:

WEATHER:

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM:

TURBIDITY:

STREAM DEPTH:

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH:

VELOCITY: fps

CROSS SECTION: 0 /

FLOW: cfs

pH:

WATER TEMP.: 49.0

AIR TEMP.:

DO:

COD SAMPLE (H₂SO₄): Sample Taken.

ALGAE:

PLANKTON:

BOTTOM SAMPLE:

MISSISSIPPI RIVER - FIELD DATA

DAY: Wednesday LMBO# 4595
DATE: July 30, 1969 PICTURE NOS. _____
STREAM: Beaver Slough RIVER MILE: 513.8
LOCATION: _____
TIME: _____
WEATHER: _____
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: _____
TURBIDITY: _____
STREAM DEPTH: _____
STREAM WIDTH: _____
VELOCITY: _____ fps
CROSS SECTION: 0 /
FLOW: _____ cfs
pH: _____
WATER TEMP.: _____
AIR TEMP.: _____
DO: _____
COD SAMPLE (H₂SO₄): _____
ALGAE: _____
PLANKTON: _____
BOTTOM SAMPLE: Sample Taken.

SKETCHES AND
OTHER FIELD
NOTES:

MISSISSIPPI RIVER - FIELD DATA

DAY: Thursday LMBO# 4590

DATE: July 31, 1969 PICTURE NOS. _____

STREAM: Beaver Slough RIVER MILE: 513.2

&
LOCATION: at Effluent #1

TIME: 3:30 p.m.

WEATHER: _____

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: _____

TURBIDITY: _____

SAMPLE

STREAM DEPTH: 4 Meters

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: _____

VELOCITY: _____ fps

CROSS SECTION: □ /

FLOW: _____ cfs

pH: _____

WATER TEMP.: 25.0

AIR TEMP.: _____

DO: _____

COD SAMPLE (H₂SO₄): _____

ALGAE: _____

PLANKTON: _____

BOTTOM SAMPLE: Sample Taken.

MISSISSIPPI RIVER - FIELD DATA

DAY: Thursday LMBO# 4591

DATE: July 31, 1969 PICTURE NOS. _____

STREAM: Beaver Slough RIVER MILE: 514.2

&
LOCATION: at Effluent #2

TIME: 3:50 p.m.

WEATHER: _____

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS:

STREAM BOTTOM: _____

TURBIDITY: _____

SAMPLE _____

STREAM DEPTH: 4.2 Meters

SKETCHES AND
OTHER FIELD
NOTES:

STREAM WIDTH: _____

VELOCITY: _____ fps

CROSS SECTION: □ /

FLOW: _____ cfs

pH: _____

WATER TEMP.: 24.5

AIR TEMP.: _____

DO: _____

COD SAMPLE (H₂SO₄): _____

ALGAE: _____

PLANKTON: _____

BOTTOM SAMPLE: Sample Taken.

MISSISSIPPI RIVER - FIELD DATA

DAY: Thursday LMBO# 4592

DATE: July 31, 1969 PICTURE NOS. _____

STREAM: Beaver Slough RIVER MILE: 515.5
&

LOCATION: at Effluent #3

TIME: 4:20 p.m.

WEATHER: _____

SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: _____

STREAM BOTTOM: _____

TURBIDITY: _____

STREAM DEPTH: 3.8 Meters SKETCHES AND
OTHER FIELD
NOTES: _____

STREAM WIDTH: _____

VELOCITY: _____ fps

CROSS SECTION: 0 /

FLOW: _____ cfs

pH: _____

WATER TEMP.: 24.5

AIR TEMP.: _____

DO: _____

COD SAMPLE (H₂SO₄): _____

ALGAE: _____

PLANKTON: _____

BOTTOM SAMPLE: Sample Taken.

MISSISSIPPI RIVER - FIELD DATA

DAY: Thursday LMBO# 4593
DATE: July 31, 1969 PICTURE NOS. _____
STREAM: Beaver Slough RIVER MILE: 516.9
&
LOCATION: at Effluent #4
TIME: 4:45 p.m.
WEATHER: _____
SOIL TYPE AND
OTHER PHYSICAL
OBSERVATIONS: _____

STREAM BOTTOM: _____
TURBIDITY: _____
SAMPLE
STREAM DEPTH: 4.5 Meters SKETCHES AND
OTHER FIELD
STREAM WIDTH: _____ NOTES: _____
VELOCITY: _____ fps
CROSS SECTION: □ /
FLOW: _____ cfs
pH: _____
WATER TEMP.: 25.0
AIR TEMP.: _____
DO: _____
COD SAMPLE (H₂SO₄): _____
ALGAE: _____
PLANKTON: _____
BOTTOM SAMPLE: Sample Taken.

Appendix

Laboratory Results -
Biological Determinations,
Tributary Reconnaissance and
Main Stem Reconnaissance

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 1 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

IMBO #	4567	4594	4566	4593
Station	Mouth of Catfish C.	Miss.R. 1 1/2 mi below Dub. STP	Mouth of Menominee R.	Beaver Slough Mile 516.9
Depth of Station (m)	3.6	3.6	1	4.5
Date of Collection	7-29-69	7-25-69	7-28-69	7-31-69
Date of Analysis	8-15-69		8-15-69	8-20-69
Oligochaeta (sludgeworms)	120	1380	2820	
Sphaeriidae (finger nail clams)			10	
Tendipedidae (bloodworms)		40	120	20
Other Diptera			20	
Pulmonata (lung breathing snails)				
Isopoda (aquatic sowbugs)				
Nematoda (roundworms)				
Amphipoda (scuds)				
Prosobranchia (gill-breathing snails)				
Plecoptera (stonefly-larvae)				
Trichoptera (caddis-fly larvae)			270	10
Ephemeroptera (mayfly-larvae)			90	
Coleoptera (aquatic beetles)			10	
Gladocera (water fleas)				
Hydrasarina (water mites)				
Total	120	1420	3340	30

Methods Reference: Preservative Formalin 10%

Remarks:

IMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref.:
Date: 10-6-69
Page 2 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

IMBO #	4592	4591	4595	4590	
Station	Beaver Slough Mile 515.5	Beaver Sl. Mile 514.2	Beaver Sl. Mile 513.8	Beaver Slough Mile 513.2	
Depth of Station (m)	3.8	4.2	1	4	
Date of Collection	7-31-69	7-31-69	7-30-69	7-31-69	
Date of Analysis	8-19-69	8-19-69	8-19-69	8-19-69	
Oligochaeta (sludgeworms)		310	770	260	
Sphaeriidae (fingernail clams)					
Tendipedidae (bloodworms)		80		460	
Other Diptera	10				
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill- breathing snails)					
Plecoptera (stonefly- larvae)					
Trichoptera (caddis- fly larvae)	50			880	
Ephemeroptera (mayfly- larvae)	10				
Coleoptera (aquatic beetles)				30	
Turbellaria (flatworms)				790	
Hirudinea (leeches)				10	
Fish fry					
Total	80	390	770	2430	

Methods Reference:

Preservative Formalin 10%

Remarks:

IMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 3 of 13 Pages

Table

BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA

Sample Source: Mississippi River Tributary Reconnaissance

Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

LMBO #	4485	4486	4487	4488	4489
Station	Little Marquette R. at HW 52	Catfish Ck. at HW 61 & 51	Tete Du Morte Ck.	Yeager Ck.	Spruce Creek
Depth of Station (m)	1.0	1.0	1.3	0.3	0.1
Date of Collection	7-22-69	7-23-69	7-23-69	7-23-69	7-23-69
Date of Analysis	8-21-69	8-21-69	8-29-69	8-21-69	8-22-69
Oligochaeta (sludgeworms)	40	40		5590	770
Sphaeriidae (fingerail clams)					
Tendipedidae (bloodworms)	210	210	10	1890	390
Other Diptera					
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill- breathing snails)					
Placoptera (stonefly- larvae)					
Trichoptera (caddis- fly larvae)			20		
Ephemeroptera (mayfly- larvae)					
Coleoptera (aquatic beetles)					
Cladocera (water fleas)					
Hydrasarina (water mites)					
Total	250	250	30	7480	1160

Methods Reference:

Preservative Formalin 10%

Remarks:

LMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 4 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

LMB #	4490	4491	4492	4493	4494
Station	Mill Creek	Duck Creek	Pleasant Ck. at HW 52	Maquoketa R. at HW 52	Beaver S. at HW 52
Depth of Station (m)	0.3		0.2	1.5	0.3
Date of Collection	7-22-69	7-23-69	7-23-69	7-23-69	7-24-69
Date of Analysis	8-26-69	8-29-69	8-29-69	8-26-69	8-25-69
Oligochaeta (sludgeworms)	990		470	1030	1330
Sphaeriidae (fingerail clams)					
Tendipedidae (bloodworms)		90	40	1330	40
Other Diptera		10			
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill-breathing snails)					
Placoptera (stonefly-larvae)					
Trichoptera (caddis-fly larvae)				40	
Ephemeroptera (mayfly-larvae)					
Coleoptera (aquatic beetles)					
Cladocera (water fleas)					
Hydrasarina (water mites)					
Total	990	100	510	2400	1370

Methods Reference:

Preservative Formalin 10%

Remarks:

LMB Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 5 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

IMBO #	4495	4496	4497	4498	4499
Station	Elk R. at HW 52	Heldt Ditch	Mill Ck. at HW 30 North Branch	Mill Ck. at HW 67	Rock Ck. at HW 67
Depth of Station (m)	0.3	0.1	0.6	0.1	0.3
Date of Collection	7-24-69	7-24-69	7-24-69	7-24-69	7-24-69
Date of Analysis	8-25-69	8-26-69	9-2-69	8-26-69	9-2-69
Oligochaeta (sludgeworms)	1120	40	3700	1060	2320
Sphaeriidae (fingerail clams)					
Tendipedidae (bloodworms)	90	90		10	90
Other Diptera					
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill- breathing snails)					
Placoptera (stonefly- larvae)					
Trichoptera (caddis- fly larvae)					
Ephemeroptera (mayfly- larvae)					
Coleoptera (aquatic beetles)					
Cladocera (water fleas)					
Hydrasarina (water mites)					
Total	1210	130	3700	1070	2410

Methods Reference:

Preservative Formalin 10%

Remarks:

IMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 6 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

IMBO #	4501	4502	4503	4504	4505
Station	McCarty Creek	Pigeon R. at HW 67	Crow Creek		Mad Creek at HW 61 & 22
Depth of Station (m)	0.1	0.5	0.05		0.1
Date of Collection	7-24-69	7-24-69	7-24-69		7-24-69
Date of Analysis	8-27-69	8-29-69	8-29-69		8-29-69
Oligochaeta (sludgeworms)		40			
Sphaeriidae (finger nail clams)					
Tendipedidae (bloodworms)	60	170			
Other Diptera					
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)				SAMPLE LOST	
Amphipoda (scuds)					
Prosobranchia (gill-breathing snails)					
Plecoptera (stonefly-larvae)					
Trichoptera (caddis-fly larvae)		40			
Ephemeroptera (mayfly-larvae)		90			
Coleoptera (aquatic beetles)					
Cladocera (water fleas)					
Hydrasarina (water mites)					
Total	60	340	0		0

Methods Reference:

Preservative Formalin 10%

Remarks:

IMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 7 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

IMBO #	4506	4507	4510	4511	4512
Station	Iowa River at HW 92	Flint River at HW 61	Devils Ck. at HW 61	Lamales Creek	Prices Creek
Depth of Station (m)	1.2	0.1	1.0	0.2	0.2
Date of Collection	7-25-69	7-25-69	7-27-69	7-28-69	7-28-69
Date of Analysis	8-29-69	8-28-69	8-22-69	8-29-69	8-28-69
Oligochaeta (sludgeworms)		40		210	2670
Sphaeriidae (fingerail clams)					
Tendipedidae (bloodworms)	40	90	40	3310	390
Other Diptera					
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill- breathing snails)					
Plecoptera (stonefly- larvae)					
Trichoptera (caddis- fly larvae)					
Ephemeroptera (mayfly- larvae)					
Coleoptera (aquatic beetles)					
Cladocera (water fleas)					
Hydrasarina (water mites)					
Total	40	130	40	3520	3060

Methods Reference:

Preservative Formalin 10%

Remarks:

IMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 8 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, PENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

LMBO #	4568	4535	4534	4533	4532
Station	Menominee River	Little Menominee R.	Sinsinawa River	Galena R. at HW 84	Small Pox Ck at HW 84
Depth of Station (m)	0.2	0.1	0.3	1.5	0.1
Date of Collection	7-31-69	7-31-69	7-31-69	7-31-69	7-31-69
Date of Analysis	8-27-69	8-29-69	8-26-69	8-26-69	8-26-69
Oligochaeta (sludgeworms)	170	40	210	430	260
Sphaeriidae (fingerail clams)	210	1380	3490	130	90
Tendipedidae (bloodworms)		40	1030		
Other Diptera					
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill-breathing snails)					
Placoptera (stonefly-larvae)					
Trichoptera (caddis-fly larvae)		390	2150		170
Ephemeroptera (mayfly-larvae)		260	260		
Coleoptera (aquatic beetles)					
Cladocera (water fleas)			170		
Hydrasarina (water mites)					
Hirudinea (leeches)			40		
Total	380	2110	7350	560	520

Methods Reference:

Preservative Formalin 10%

Remarks:

LMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 9 of 13 Pages

Table

BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA

Sample Source: Mississippi River Tributary Reconnaissance

Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

IMBO #	4531	4530	4529	4528	4527
Station	Apple River	Rush Creek at HW 84	Plum River at HW 84	Johnson Creek	Cattail Ck. at HW 84
Depth of Station (m)	1.0	0.3	0.4	0.05	0.2
Date of Collection	7-31-69	7-31-69	7-31-69	7-31-69	7-31-69
Date of Analysis	8-25-69	8-21-69	8-25-69	8-25-69	8-25-69
Oligochaeta (sludgeworms)			170	40	260
Sphaeriidae (fingernail clams)					
Tendipedidae (bloodworms)					690
Other Diptera					
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill-breathing snails)					
Placoptera (stonefly-larvae)					
Trichoptera (caddis-fly larvae)					
Ephemeroptera (mayfly-larvae)					
Coleoptera (aquatic beetles)					40
Cladocera (water fleas)					
Hydrasarina (water mites)					
Total	0	0	170	40	990

Methods Reference:

Preservative Formalin 10%

Remarks:

IMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 10 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

LMBO #	4569	4570	4571	4513	4514
Station	Spring Creek	A Creek at Mile 496.4	Sugar Ck. at HW 84	Rock R. at HW 199	Copperas Creek
Depth of Station (m)	0.1	0.2	0.1	0.8	0.2
Date of Collection	8-1-69	8-1-69	8-1-69	7-29-69	7-29-69
Date of Analysis	8-26-69	8-27-69	8-27-69	8-28-69	8-29-69
Oligochaeta (sludgeworms)	1080	130		90	
Sphaeriidae (fingerail clams)					
Tendipedidae (bloodworms)		40	1030	40	
Other Diptera				40	
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill-breathing snails)					
Placoptera (stonefly-larvae)					
Trichoptera (caddis-fly larvae)			40		
Ephemeroptera (mayfly-larvae)					
Coleoptera (aquatic beetles)					
Cladocera (water fleas)					
Hydrasarina (water mites)					
Total	1080	170	1070	170	0

Methods Reference:

Preservative Formalin 10%

Remarks:

LMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 11 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

LMBO #	4515	4516	4517	4518	4519
Station	Boston Bay at County A	Edwards Creek	Honey Creek	Henderson R. at HW 64	Creek on HW 34
Depth of Station (m)	0.2	1.5	0.3	1.0	0.5
Date of Collection	7-29-69	7-29-69	7-29-69	7-27-69	7-29-69
Date of Analysis	8-20-69	8-29-69	8-20-69	8-22-69	8-21-69
Oligochaeta (sludgeworms)			300	40	
Sphaeriidae (fingerail clams)					
Tendipedidae (bloodworms)	210	10	1030	170	
Other Diptera					
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill- breathing snails)		20			
Plecoptera (stonefly- larvae)					
Trichoptera (caddis- fly larvae)				90	
Ephemeroptera (mayfly- larvae)					
Colapoptera (aquatic beetles)					
Cladocera (water fleas)					
Hydracarina (water mites)					
Total	210	30	1330	300	0

Methods Reference:

Preservative Formalin 10%

Remarks:

LMBO Form (8/15/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref.:
Date: 10-6-69
Page 12 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, PENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

IMBO #	4520	4521	4522	4523	4525
Station	Ellison Creek	Honey Creek	Camp Creek	Spillman Creek	Chaney Ck. at Hw 96
Depth of Station (m)	0.4	0.3	1.1	0.6	0.4
Date of Collection	7-29-69	7-29-69	7-29-69	7-29-69	7-30-69
Date of Analysis	8-22-69	8-20-69	8-20-69	8-21-69	9-2-69
Oligochaeta (sludgeworms)	4600	300	1140	5550	300
Sphaeriidae (fingerail clams)				90	
Tendipedidae (bloodworms)	210	1030	390	390	10720
Other Diptera	40			90	
Pulmonata (lung breathing snails)					
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill-breathing snails)					
Placoptera (stonefly-larvae)					
Trichoptera (caddis-fly larvae)					
Ephemeroptera (mayfly-larvae)					40
Collembola (aquatic beetles)					
Cladocera (water fleas)					
Hydrasarina (water mites)					
Nematoda (roundworms)					40
Total	4850	1330	1530	6120	11100

Methods Reference:

Preservative Formalin 10%

Remarks:

IMBO Form (8/18/69)

Lake Michigan Basin Office
1819 W. Pershing Road
Chicago, Illinois 60609
Biology Section

Ref:
Date: 10-6-69
Page 13 of 13 Pages

Table
BIOLOGICAL DETERMINATIONS, BENTHIC FAUNA
Sample Source: Mississippi River Tributary Reconnaissance
Study Period July 22 - August 1, 1969

Results Expressed in Numbers of Organisms
per Square Meter

IMBO #	4526	4524			
Station	Tyson Ck. at HW 96				
Depth of Station (m)	0.2				
Date of Collection	7-30-69				
Date of Analysis	8-25-69				
Oligochaeta (sludgeworms)					
Sphaeriidae (fingerail clams)					
Tendipedidae (bloodworms)	390				
Other Diptera					
Pulmonata (lung breathing snails)		NO SAMPLE TAKEN			
Isopoda (aquatic sowbugs)					
Nematoda (roundworms)					
Amphipoda (scuds)					
Prosobranchia (gill- breathing snails)					
Placoptera (stonefly- larvae)					
Trichoptera (caddis- fly larvae)					
Ephemeroptera (mayfly- larvae)					
Coleoptera (aquatic beetles)					
Gladocera (water fleas)					
Hydrasarina (water mites)					
Total	390				

Methods Reference: Preservative Formalin 10%

Remarks:

IMBO Form (8/13/69)

Appendix

Laboratory Results

Laboratory ResultsAppendixChemical Oxygen Demand (COD) Values

<u>IMBO NO.</u>	<u>LOCATION</u>	<u>COD</u>
4485	Little Maquoketa River - Iowa	75
4486	Catfish Creek - Iowa	75
4487	Tete DuMort Creek - Iowa	77
4488	Yeager Creek - Iowa	76
4489	Spruce Creek - Iowa	84
4490	Mill Creek - Iowa	80
4491	Duck Creek - Iowa	74
4492	Pleasant Creek - Iowa	80
4493	Maquoketa River - Iowa	92
4494	Beaver Creek - Iowa	77
4495	Elk River - Iowa	78
4496	Heldt Ditch - Iowa	75
4497	Mill Creek - North Branch - Iowa	93
4498	Mill Creek - South Branch - Iowa	86
4499	Rock Creek - Iowa	93
4500	Wapsipinicon River - Iowa	87
4501	McCarthy Creek - Iowa	81
4502	Pigeon Creek - Iowa	83
4503	Crow Creek - Iowa	82
4504	Duck Creek - Iowa	78
4505	Mad Creek - Iowa	68
4506	Iowa River - Iowa	29
4507	Flint River - Iowa	27

Laboratory ResultsAppendixCHEMICAL OXYGEN DEMAND (COD) VALUES

<u>LMBO NO.</u>	<u>LOCATION</u>	<u>COD</u>
4508	Skunk River - Iowa	53
4509	Iowa River - Iowa	42
4510	Devil's Creek - Iowa	41
4511	Lamalees Creek - Iowa	31
4512	Prices Creek - Iowa	43
4513	Rock River - Illinois	56
4514	Copperas Creek - Illinois	39
4515	Boston Bay Drainage Channel - Illinois	40
4516	Edwards River - Illinois	54
4517	Pope Creek - Illinois	40
4518	Henderson Creek - Illinois	33
4519	Carthage Drainage Channel - Illinois	39
4520	Ellison Creek - Illinois	55
4521	Honey Creek - Illinois	33
4522	Camp Creek - Illinois	30
4523	Spillman Creek - Illinois	35
4524	Des Moines River - Iowa	29
4525	Chaney Creek - Illinois	40
(None)	Larry Creek - Illinois - No Sample Collected	
4526	Tyson Creek - North Branch - Illinois	42
4527	Cattail Creek - Illinois	49
4528	Johnson Creek - Illinois	19
4529	Plum River - Illinois	34

Laboratory ResultsAppendixCHEMICAL OXYGEN DEMAND (COD) VALUES

<u>LMBO NO.</u>	<u>LOCATION</u>	<u>COD</u>
4530	Rush Creek - Illinois	29
4531	Apple River - Illinois	22
4532	Small Fox Creek - Illinois	16
4533	Galena River - Illinois	25
4534	Sinsinawa River - Illinois	22
4535	Little Menominee River - Illinois	22
4568	Menominee River - Illinois	19
4569	Spring Creek - Illinois	39
4570	(No Name) - Illinois	37
4571	Sugar Creek - Illinois	35
4559	Beaver Slough at Eff. Pipe #1 - Miss. River	26
4560	" " " " #2 - "	33
4561	" " " " #3 - "	23
4562	" " " " #4 - "	25
4563	" " " " #5 - "	27
4564	" " " " #6 - "	59
4565	" " " " #7 - "	18,770
4566	Menominee River at Confluence with Miss. River - Illinois	26
4567	Catfish Creek at Confluence with Miss. River - Iowa	35